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Region

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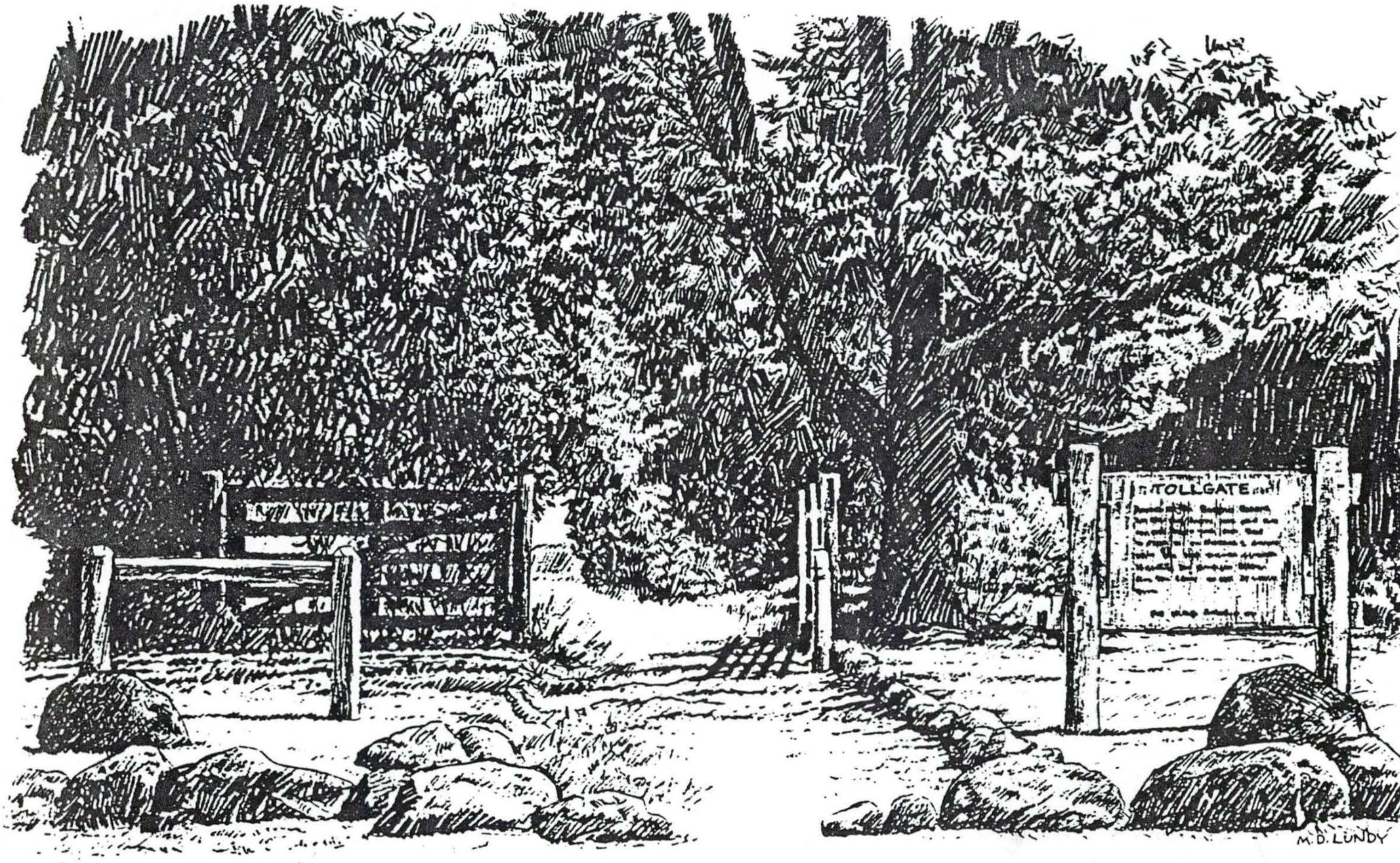
Project Management Guidelines for Recreation, Facilities and Trails

By Jimmy M. Roberts
May 31, 1992



PROJECT MANAGEMENT GUIDELINES FOR RECREATION, FACILITIES, AND TRAILS

Executive Summary

PROJECT MANAGEMENT GUIDELINES FOR RECREATION, FACILITIES, AND TRAILS

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Forest Service management of the National Forest System is currently a major focus of various publics and Congress. Public interest combined with legislated direction, numerous social and environmental laws, and land and resource management plans created under the National Forest Management Act have significantly increased the complexity of resource and project development programs over the last two decades. Coordination with various jurisdictions responsible for managing the resources is very intricate. Budget constraints do not allow the luxury of developing marginal or poorly planned projects. Project development within these conditions requires a common decision and documentation process.

The Pacific Northwest Region developed a decision process to facilitate project development for recreation. This process was implemented in draft form in 1989. Three years of field use has surfaced several issues and concerns. It is timely to review the process to clarify procedural ambiguities, more clearly define terms, and evaluate its effectiveness. The concepts of project management were used to guide the review process, and in formulating the recommendations for refinement and revision.

Analysis of the current process has proved that it is a valid methodology for development and implementation of Forest Service projects. The difficulties were found in understanding the required products, the timing and sequence of the phases, and the impact of decision points.

The recommendations suggest modifications that would strengthen and enhance the current process for Recreation, Facilities, and Trails Development Programs. It more clearly defines terms, expected products, funding requirements, and illustrates project management guidelines. It also adopts Recreation Resource Management Objectives as the vehicle for specific management direction for an individual facility.

The recommendations may be applied to all resource development projects including roads, buildings, and watchable wildlife. They are also applicable at any administrative level whether it is Regional, Forest, or District.

Pacific Northwest Region

PROJECT MANAGEMENT GUIDELINES FOR RECREATION, FACILITIES, AND TRAILS

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This paper was prepared as a student project in partial fulfillment of the requirements of the Professional Development for Outdoor Recreation Management Program at Clemson University. It in no way reflects USDA Forest Service policy nor are the opinions expressed those of anyone other than the author.

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PROJECT MANAGEMENT GUIDELINES FOR RECREATION, FACILITIES, AND TRAILS

ABSTRACT

Resource and project development programs in the Forest Service have significantly increased in complexity over the past two decades. Coordination of project development within these conditions requires a common decision and documentation process.

Analysis of the current "Gate process" has proved that it is a valid methodology for development and implementation of Forest Service projects. Problems in understanding the required products, the timing and sequence of the phases, and the impact of decision points were identified and the recommendations suggest modifications that would enhance the current process for Recreation, Facilities, and Trails Development Programs. It more clearly defines terms, expected products, funding requirements, and illustrates project management guidelines. It also adopts Recreation Resource Management Objectives (RRMO) for specific management direction.

Others who might find this report useful: Line and staff officers with responsibility for resource development including roads, trails, administrative and recreational facilities, and watchable wildlife; recreation planners, landscape architects, engineers and others with responsibility for project development and management.

Key Words: Development, project management, process, Gate System, planning, project conception, project definition, funding.

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INTRODUCTION

Give us the fortitude to endure the things which cannot be changed, and the courage to change the things which should be changed, and the wisdom to know one from the other.

Oliver J. Hart

PROJECT MANAGEMENT GUIDELINES FOR RECREATION, FACILITIES, AND TRAILS

INTRODUCTION

HISTORICAL PERSPECTIVE

The present status of the recreation resource, and in particular project development, in National Forest Management is the product of its historical development within the agency. It is necessary to understand that evolution to understand current priorities for recreation planning, project development, and the need for a more definitive decision-process and project management.

Forest Service Mission

The Forest Service Mission Statement (FSM 1030.2 Amendment 1000-90-1 June 1990) asserts the agency will:

> ...provide a continuing flow of natural resources, goods and services to help meet the needs of the Nation and contribute to the needs of the international community by:
>
> 1. Making the renewable resources of the National Forest System fully productive to provide a sustained flow of outdoor recreation, forage, wood, water, fish, wildlife, and wilderness.

To meet the mission objective, the National Forest is responsible for ensuring that a variety of outdoor recreation opportunities are available to all the various users of the National Forest System. Two goals of the agency's response to present and future needs are:

1) Provide facilities for recreation activities in natural settings that harmonize with and complement the natural environment.

2) Provide public facilities that perpetuate traditional values with recreation activities, programs and facilities dependent on natural settings.

Forest Service Organization

The Forest Service is, by design, a decentralized organization that encourages decisions at the level most closely associated with a resource or project. This philosophy has been central to its management style since the agency's inception. The basic organizational structure is one of line and functional staff. Line officers such as Regional Forester, Forest Supervisor, and District Ranger are delegated certain responsibilities and authorities. Describing the agency's formation Gifford Pinchot stated, "The Forest Service was no organization of master and servant. It was a service of mutual effort for a common purpose. We were all working together to the same end." (Pinchot, 1947, p. 282)

Purposes of National Forests

The Organic Act of June 4, 1897 specifies three purposes for which forest reserves should be managed: 1) to improve and protect the national forests, 2) to secure favorable conditions of water flow; and 3) to furnish a continuous supply of timber for the use of the citizens of the United States. Recreation was not specifically excluded, but it could be reasonably inferred as included among the compatible uses of the reserves. The use was acknowledged and regulated, but not promoted. (Throop, 1989, p. 1)

Initially few or no facilities were initially provided by the Federal government.

> Conditioned by training based largely on European methods and 'case-hardened' cultural outlooks - especially those of the German states - foresters largely emphasized the business side of their field. Forestry paid or failed according to whether financial income from harvesting trees was greater or less than the cost of growing them. Other forest values that couldn't readily by measured in dollars didn't really count. The forest was looked upon as a factory for the production of wood. (Frank, 1955, p. 73)

Early facility development was based on the premise of protecting the natural resources. Campgrounds that were developed were for protection of adjacent resources from fire and not for user convenience.

Recreation Role of National Forests

Throughout the decade of the 1920's "the Forest Service pursued a cautious conservative recreation site development policy. Generally, that policy held that the recreation role of the National Forests was to provide *space* for recreation. Publicly financed recreation facilities remained limited in number and usually simple in nature. The needs of the public for more elaborate developments were to be met by privately financed resorts or by summer cabin areas located on National Forest lands under the Term Occupancy Act. This policy of limited Federal development of National Forest recreation sites fit both the philosophical outlook of the Forest managers and the budgetary goals of the Coolidge and Hoover administrations and of Congress." (Tweed, 1980, p. 13)

The Forest Service prepared "A National Plan for American Forestry" (The Copeland Report) in 1933 describing work needed to develop, rehabilitate, or restore natural resources. The section written by Robert Marshall (collaborator) spoke of providing for the comfort and convenience of travelers; developing campsite areas would "curtail the very serious damage to forests which results when the hordes of tourists who through many popular highways camp chaotically through the surrounding woods."

Social Values of National Forests

Although recreation development proceeded at an escalating rate nation wide, the recreation program lacked formal structure or direction within the organization. The Division of Recreation and Lands was created in 1935; and in May, 1937, Robert Marshall was selected as it's director. Marshall's philosophy coincided with that of Chief Ferdinand A. Silcox and the New Deal Program. Silcox believed in the benefits of outdoor recreation and in the social values of the National Forests. Facilities should provide for the comfort and convenience of forest visitors and should be responsive to the public demand.

This policy necessitated comprehensive resource planning based on a design philosophy of non-intrusiveness through the use of native and natural materials in scale and proportion appropriate to the setting and natural environment. Forester-recreation specialists were deeply involved in project planning, but much of the design work was done by professionally trained architects and landscape architects. Relatively few of these skilled people held permanent positions in the Forest Service, so the expertise was temporary. As the 1930's ended, national defense priorities came to the fore and public works recreation appropriations ceased.

Expanded Demand - Increased Complexity

The end of World War II brought on the baby boom, increased affluence, increased leisure time, improved transportation systems, and a population mobility that led to unprecedented growth in demand for outdoor recreation. Congress responded to this demand in 1958 by establishing the Outdoor Recreation Review Commission. The results of the three year study was an assessment of demand for outdoor recreation to the year 2000. These results guided national and state policy for the next 20 years. Coincidentally, enactment of a series of enrivonmentally-related laws including the National Environmental Policy Act, National Historic Preservation Act, Wilderness Act, Multiple Use-Sustained Yield Act, and Federal and State water and sanitation standards introduced more stringent requirements to project development.

Facility design themes in this time period continued with the rustic non-intrusive character of the 1930's. Design was modernized to account for new materials and improved technology but essentially remained simple. This design theme was perceived as appropriate to the National Forest System for recreation development. Facility development was based on a "formula" for design and layout.

Although management was extended, functional and technical staff were increased, and the organization was still competent to manage project development. Management and staff felt that they knew what the public wanted and expected. Development funding was limited and generally associated with existing facilities or with public works projects.

Public Interest Intensified

Public concern for the environment and quality of life intensified in the decade of the 1970's and through the 1980's. Individuals and organizations were dissatisfied with the direction of natural resource management and environmental protection. Expectations of resource management actions, particularly on National Forest System lands, were not being met. The public looked for legislative remedy when Congress passed the National Forest Management Act (NFMA) of 1976. NFMA required the development and implementation of Forest Land and Resource Management Plans (FLRMP) that dictated standards and guidelines for managing and developing the resources.

People were concerned about not only the management of natural resources, but also cultural resource management and historic preservation. They expected more protection and enhancement, including interpretation of sites, structures and past lifeways on National Forests. At the same time, an increased sensitivity to cultural differences within American society, and a recognition of differing physical capabilities within the population led to added legislation and legal mandates. National Forests should be accessible to all, and accommodate the differing social customs of the diverse ethnic cultures.

Coupled with these demands for environmental protection and the emphasis on social responsibility was a large amount of disposable income available for recreational purposes. The recreational desires of the public included an increased use of motorized craft such as snowmobiles, all terrain vehicles (ATV's), boats, and larger vehicles for transportation. The nation saw a rise in the use of motor homes and pickup campers for overnight stays. Trailer camping from large self-contained units to small tent trailers increased. Camping equipment was larger and more sophisticated. Campgrounds, constructed in previous years, were generally insufficient to accommodate the changing needs of the using public.

Funding for project development to meet all of these demands was increased. Expectations from the public were high with Congressional and local government support causing a proliferation of projects. A trend toward Congressional earmarks for particular projects in specific areas emerged.

However, project development was no longer simple. Facility design had to answer all of the accumulated legal, environmental, economic, social, and technological questions posed by a site and its conditions. Adding to the complexity of project development was the coordination of activities with the various Federal, State, and local agencies for approval or concurrence within their jurisdictional responsibilities. The public was demanding all of these of the National Forest System, and they wanted it accomplished rapidly and economically.

The philosophy of "mutual effort" combined with a myriad of laws, regulations, policies, and critical scrutiny from special interest organizations require the establishment of common decision and project management processes. The objective of these processes is to ensure that "we are all working together to the same end."

The traditional line and functional staff organization is not conducive to responding to these sophisticated demands in a manner that is considered timely by the using public.

Gifford Pinchot captured the essence of the situation:

> There was just one thing to do in light of what we had learned about the Forest Reserves, the people of the West, and the federal Government - we must go vigorously forward, apply the knowledge and common sense we had to the task ahead, and everywhere and always prefer results to routine.
>
> In other words, our organization and our methods must never be frozen, but always subject to change. Whenever and wherever experience brought better methods or better organization to light, we must be ready to throw off the old and take on the new (Pinchot, 1947, p. 257).

PURPOSE

The Recreation, Facilities, and Trails Development Process (Gate System) currently guides project development in the Pacific Northwest Region. This system was issued in draft form in 1989 (see Exhibit 1).

The objectives of this project are threefold. The first is an analysis of the current recreation project development process. This review will identify weaknesses in the system and areas of the process that are unclear, poorly defined, or confusing. The second objective is to suggest ways to strengthen the system, add definitions or clarification where necessary and recommend refinements or revisions for overall improvement. The third objective is to provide explicit project management guidelines for the development process.

The Gate System's objective was to provide improved integration of project planning, design, and construction with program emphasis and funding. The process was to simplify and provide uniform and flexible methodology, with budget and workforce requirements for project development. Project management processes are inferred but not directly addressed.

Although the analysis and recommendations are for the process as it is managed in Region 6, it has applicability to any discipline nationwide, that is involved in project development. The principles and guidelines may be used for Engineering, Wildlife, or other program emphasis projects. It is particularly useful to project development under the Fire, Administration, and Other Facility Program.

INFORMATION SOURCES

Research for this project was accomplished using three methods: informal interviews and discussions, literature search, and a training seminar.

Informal interviews and discussions were held with various project development, program, and management personnel including project engineers, landscape architects, architects, staff officers, District Rangers, Forest

Supervisors, and program managers at Forest and Regional Offices. The comments and suggestions made by these people were most valuable in general but specifically during the analysis phase of the project.

The literature search was conducted using the Forest Service Infowest as a primary computer data base for related information. Subject searches were conducted using school, public, and Forest Service libraries. Additional information was obtained from the personal sources of many Forest Service employees.

A seminar conducted by Skillpath, Inc. (Dec. 1991) on "Managing Multiple Projects, Objectives and Deadlines" provided valuable insight to the project management process. The seminar also provided leads to other technical sources of information used in the development of the project management guidelines.

Literature:

The literature search focused on four areas of emphasis: current management direction, technical, philosophical, and historical references.

Current management direction was obtained from the Forest Manuals and Handbooks particularly the 1000, 1200, 1600, 2300 and 7700 manuals. Additionally, much of the material was obtained from the notes and draft documents of the Region 6 Development Process for Recreation, Facilities, and Trails (Gate System) and the 1989 Region 6 Request for Project Proposals.

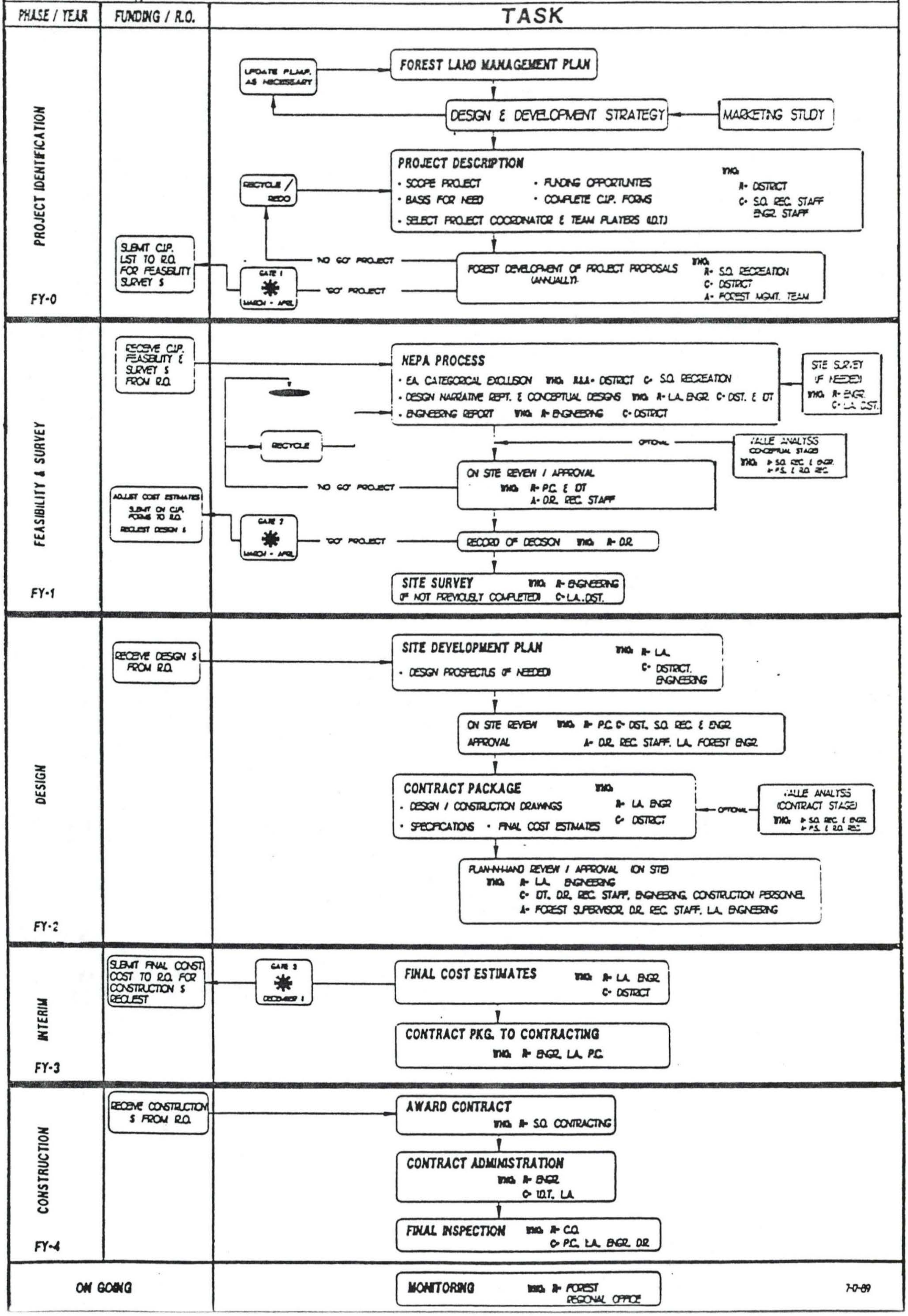
Technical information was available from several sources. The major ones used were the Region 6 Gate System (draft), Southwestern (R-3) Region's "Capital Investment Process for Recreation and the FA & O Facilities (Fire, Administrative, and Other)", Pacific Southwest Region's (R-5) "Recreation Site Design Guide", *Handbook for Professional Managers* (Bittel, 1985), *Systems Analysis and Project Management* (Haynes, 1989), *National Forest Landscape Management* (Agriculture Handbook No. 666, 1987), *How Designers Think* (Carson 1990), *Site Planning* (Russell, 1989), and Region 6's Recreation Handbook (R-6 Lands Handbook, Revised April 1933).

Philosophical sources of information included: *A National Plan for American Forestry* ," Recreation" (Marshall, 1933)(The Copeland Report), *Planning Parks for People* (Hultsman, 1987), *Foundations of Forest Recreation* (Colorado State University, 1986), *Interpreting the Environment* (Sharpe, 1982), and *ROS User's Guide* (Forest Service, 1986).

Historical sources were used to establish a frame of reference in determination of current management direction development. The primary sources of historical information came from: *Breaking New Ground* (Pinchot, 1947), *The Forest Service: A Study in Public Land Management* (Robinson, 1975), *The Forest Service: A History* (Steen, 1976), and *The Forest Ranger* (Kaufman, 1960).

KEY:
- ✱ - R.O. GATE
- R - RESPONSIBLE TO COMPLETE
- C - CONSULT REVIEW RECOMMEND
- A - APPROVAL

R-6 RECREATION, FACILITIES, AND TRAILS DEVELOPMENT PROCESS


PHASE / YEAR
FUNDING / R.O.
TASK
PROJECT IDENTIFICATION
FY-0
UPDATE FLMP AS NECESSARY
FOREST LAND MANAGEMENT PLAN
DESIGN & DEVELOPMENT STRATEGY
MARKETING STUDY
RECYCLE / REDO
PROJECT DESCRIPTION
· SCOPE PROJECT
· BASIS FOR NEED
· FUNDING OPPORTUNITIES
· COMPLETE C.I.P. FORMS
· SELECT PROJECT COORDINATOR & TEAM PLAYERS (I.D.T.)
WHO: R- DISTRICT
C- S.O. REC. STAFF ENGR. STAFF
SUBMIT C.I.P. LIST TO R.O. FOR FEASIBILITY SURVEY $
GATE 1
MARCH - APRIL
"NO GO" PROJECT
"GO" PROJECT
FOREST DEVELOPMENT OF PROJECT PROPOSALS (ANNUALLY)
WHO: R- S.O. RECREATION
C- DISTRICT
A- FOREST MGMT. TEAM
FEASIBILITY & SURVEY
FY-1
RECEIVE C.I.P. FEASIBILITY & SURVEY $ FROM R.O.
NEPA PROCESS
· EA CATEGORICAL EXCLUSION WHO: R&A- DISTRICT C- S.O. RECREATION
· DESIGN NARRATIVE REPT. & CONCEPTUAL DESIGNS WHO: R- L.A. ENGR. C- DIST. & IDT
· ENGINEERING REPORT WHO: R- ENGINEERING C- DISTRICT
SITE SURVEY (IF NEEDED) WHO: R- ENGR. C- L.A. DIST.
RECYCLE
OPTIONAL
VALUE ANALYSIS CONCEPTUAL STAGE WHO: R- S.O. REC. & ENGR. A- F.S. & R.O. REC.
ON SITE REVIEW / APPROVAL WHO: R- P.C. & IDT A- D.R. REC. STAFF
"NO GO" PROJECT
ADJUST COST ESTIMATES SUBMIT ON C.I.P. FORMS TO R.O. REQUEST DESIGN $
GATE 2
MARCH - APRIL
"GO" PROJECT
RECORD OF DECISION WHO: R- D.R.
SITE SURVEY (IF NOT PREVIOUSLY COMPLETED) WHO: R- ENGINEERING C- L.A. DIST.
DESIGN
FY-2
RECEIVE DESIGN $ FROM R.O.
SITE DEVELOPMENT PLAN
· DESIGN PROSPECTUS (IF NEEDED)
WHO: R- L.A.
C- DISTRICT. ENGINEERING
ON SITE REVIEW APPROVAL WHO: R- P.C. C- DIST. S.O. REC. & ENGR. A- D.R. REC. STAFF. L.A. FOREST ENGR.
CONTRACT PACKAGE
· DESIGN / CONSTRUCTION DRAWINGS
· SPECIFICATIONS · FINAL COST ESTIMATES
WHO: R- L.A. ENGR. C- DISTRICT
OPTIONAL
VALUE ANALYSIS (CONTRACT STAGE) WHO: R- S.O. REC. & ENGR. A- F.S. & R.O. REC.
PLAN-IN-HAND REVIEW / APPROVAL (ON SITE)
WHO: R- L.A. ENGINEERING
C- IDT, D.R. REC. STAFF, ENGINEERING, CONSTRUCTION PERSONNEL
A- FOREST SUPERVISOR, D.R. REC. STAFF, L.A. ENGINEERING
INTERIM
FY-3
SUBMIT FINAL CONST. COST TO R.O. FOR CONSTRUCTION $ REQUEST
GATE 3
DECEMBER 1
FINAL COST ESTIMATES WHO: R- L.A. ENGR. C- DISTRICT
CONTRACT PKG. TO CONTRACTING WHO: R- ENGR. L.A. P.C.
CONSTRUCTION
FY-4
RECEIVE CONSTRUCTION $ FROM R.O.
AWARD CONTRACT WHO: R- S.O. CONTRACTING
CONTRACT ADMINISTRATION WHO: R- ENGR. C- I.D.T. L.A.
FINAL INSPECTION WHO: R- C.O. C- P.C. L.A. ENGR. D.R.
ON GOING
MONITORING WHO: R- FOREST REGIONAL OFFICE
7-0-89

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Gail Throop, Region 6 Historian and Developed Recreation Specialist, was the primary motivator and editor of this project. Her participation and constructive criticism of the research and documentation and especially her devotion to editing countless drafts was beyond the call of duty.

Jan Davis, Wallowa Mountains Engineering Zone Civil Engineering Technician, provided the computer support to document the research. Her patience and tolerance of the many changes and drafts made during the project cannot be described adequately.

Terry Slider, Deschutes National Forest Landscape Architect, assisted as a reviewer and as a test subject with Deschutes National Forest Management Team. Many of the recommendations of this research are currently being formally used by the Deschutes National Forest as policy.

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Jim Golden, Wallowa Valley District Ranger; Ed Cole, Area Ranger, Jimmy DeHerrera, and Art Seamans (retired) Assistant Area Ranger for the National Recreation Area provided both support and review of the project concepts and recommendations.

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The support and tolerance of the Wallowa Mountains Engineering Zone personnel and John Austin, Forest Engineer of the Wallowa-Whitman National Forest, as the research and development of this project was conducted cannot go unrecognized. The difficulty is how to recognize them. It is hoped that the results of this research will provide them a better way to accomplish the development of projects and protection of the resources.

METHODOLOGY

"Begin at the beginning", the King said, gravely,
"and go till you come to the end, then stop".

Lewis Carroll

METHODOLOGY

CONCEPTS OF PROJECT MANAGEMENT

Project is defined by Webster's Seventh New Collegiate Dictionary as "a specific plan or design" while the American Heritage Dictionary of the English Language states "an undertaking requiring concentrated effort." Another way of describing a project is an undertaking of a specific plan or design that has definitive beginning and end with management-established goals of cost and quality.

Project management is described by James O'Brien (James J. O'Brien "Project Management: An Overview," *Project Management Quarterly*, Vol. 5, No. 3, September 1977, p. 27. Quoted in Cleland and King, 1983) as occurring "when management gives emphasis and special attention to the conduct of non-repetitive activities for the purpose of meeting a single set of goals". Project management is a set of processes and procedures for defining, planning, designing, and implementing a project. The concept of Project Management was developed in the 1960's. The concept was first documented in 1962 by Keith Davis (Cleland and King, 1989), who was conducting research on engineering management. It was used extensively by the National Aeronautics and Space Administration and Department of Defense in the development of the ballistic missile program. The Department of Agriculture used project management in 1973 when forest resources were being damaged by three major outbreaks of insect infestation.

Although it was not called project management as such, early fire suppression efforts were formulated along the concepts of project management. Project management techniques have been used extensively by the Forest Service over the years. In addition to the project teams that are employed in fire suppression, teams have been created for flood damage rehabilitation and the land management planning effort was initially set up as a short term project by many National Forests in the 1970's. It is critical to note that the concepts will work very well on capital investment projects such as recreation facilities, roads, or even wildlife projects. Application of project management concepts become more important as project complexity increases.

There are two facets of project management: 1) the process itself, and 2) the management of the process. The process should remain the same for all projects independent of size or complexity. The management of the process may be modified according to product needs or field conditions.

Often the terms "project planning", "product management", "brand management", and "program management" are used as synonyms. Each of the styles of management is distinctly different. The terms have been defined by Bittel and Ramsey:

> Project planning is finite, dealing with a specific set of objectives. It ends when the project has been completed. Product management is tied to a specific product or product family and does not include the interrelationships between that particular product and other aspects of the firm's operation. Brand management is more narrow, dealing mainly with a very specific product of product line. Program management is a specialized planning process which is output-oriented and involves sets of resources encompassing a broader range of objectives than more traditional planning efforts (Bittel and Ramsey, 1985, p. 742).

PROJECT MANAGEMENT PROCESS

There are numerous guides and texts on project management and each offers a slightly different decision process. Generally, these processes have been framed to suit a particular product or industry. Basic to all of the varying decision processes are four distinct phases: 1) Define the project, 2) Plan the project (including design and technical specifications), 3) Implement the plan, and 4) Monitor and evaluate the completed project. The four phases describe the overall structure of the process. However, there are many critical decision points contained with each phase.

The basic process can be modified to satisfy development requirements for resource projects as follows:

1) Project conception/preliminary definition
2) Plan the project
3) Design of the project
4) Implement the project design
5) Maintenance, monitoring and evaluation (operation) of the project

This modified decision process will be used as a guide to review the R-6 Recreation Facilities and Trails Development Process. This process could be used for any type of resource project in the Forest Service. The difference in the types of projects lies in two areas, timing and terminology. Project development is sequentially the same, however, the total elapsed time to completion will vary. Differing terminology may cause confusion and delays in communicating project conceptions, development requirements, and product expectations.

PROJECT CONCEPTION/PRELIMINARY PROJECT DEFINITION

Conception

Project ideas are conceived from either a problem (issue or concern) or an opportunity. Ideas become projects when a decision is made to solve the problem or to take advantage of the opportunity. Projects may be proposed to fill a forecasted need or to alleviate a current problem.

Most projects are conceived from the strategic and operational plans of an organization. The Forest Service has a very complex system of multilayered strategic and operational plans. (See Exhibit 2). In addition to various planning processes, project ideas also originate from field personnel trying to resolve operational or maintenance problems as well as users and organization from outside the Forest Service having another perspective of a need or opportunity.

Project Definition

The preliminary definition establishes the basics of the project to include: title and location of the project, project goals and objectives, scope of the project, estimates of human resources, time and costs, and any other pertinent information, such as alternatives to not implementing the project. All of these elements are subject to refinement or change during the planning process.

EXHIBIT 2
Planning Levels of the USDA Forest Service

Planning Function	Responsibility	Documentation	Scope
Strategic	National *	Laws, Regulations, Manuals	Extensive involvement, General
	Regional	Supplements to manuals, Letters of Direction, Regional Guide.	Moderate involvement - Specific to Region
	Forest	Supplements to manuals, Letters of Direction, Forest Land and Resource Management Plans, Comprehensive Management Plans	Limited involvement - Specific to Forests
	District	Supplements to Manuals, Letters of Direction	Very limited involvement - Specific to District
Operational	National	Program Summaries and Monitoring, Limited Specific Program Direction, Handbooks, Resource Planning Act, National Budget Process	Limited involvement
	Regional	Program Summaries and Monitoring, Limited Specific Program Direction, Issuance to Field Units, Objectives, Regional Budget Process	Moderate involvement - General guidelines, specific direction and leadership
	Forest	Program Direction, Summaries, and Monitoring	Extensive involvement
	District	Implementation of Program Direction	Very extensive involvement
Project	National	Program Summaries, Monitoring, Inquiries	Limited involvement
	Regional	Program Summaries, Monitoring, Inquiries, Technical Assistance	Moderate involvement
	Forest	Program Development, Monitoring, Technical Assistance	Extensive involvement
	District	Project Proposals, NEPA, Planning, Design, Implementation	Very Extensive involvement

* The President and Congress are extensively involved with the Chief in establishment of the strategic goals and objectives of the Forest Service through the various laws and administrative decisions.

Title and location are necessary for project reference and establishing a tracking descriptor as well as establishing initial geographic and physiographic information. This information also formulates the initial perceptions of the area where the project is located.

Goals and objectives outline the intended function and management direction of the project. The goals and objectives are derived from strategic and operational plans.

Scope of the project provides management with specific intent as well as the limits of the project. Defining the scope of project provides the basis for formulation of data and initial alternatives for all decision points. It is especially critical for establishment of cost estimates and workforce requirements. Basis for need is the major factor in determining the extent of the project.

Estimates of human and material resources, time, and costs are necessary for management decisions regarding the relationship of the project to overall programs and available workforce capabilities. It is essential information for projecting workforce needs whether the personnel are force account or contractors.

Other information pertinent to the project that could affect its viability. Examples include: partnership or possible partnership with others, management alternatives available if the project is not approved, laws or regulations that may require the project to be implemented, and possible political or economic impacts.

In summary, the conceptualization and definition phase of a project is complete when it has been determined that there is a need for the project and when the end product has been defined as to what it should be and accomplish.

PLANNING THE PROJECT

Planning is the most critical step in the development of a project. The results of the planning effort affect the remaining steps of project development including operation and maintenance. Many of the problems that occur with a project may be traced to an incomplete or limited effort in the planning phase.

An inadequate planning effort results from an ill-conceived project, limited time or resources, and unclear or incomplete management objectives. On occasion a vital project may have an inadequate planning effort corrected during the later stages of the development process, but not without undue expense of an already limited workforce, constrained budget, and public dissatisfaction and frustration.

The function of the planning phase is to establish the final goals, objectives and design criteria of a development project. Public issues, management concerns, and resource opportunities are identified, analyzed and evaluated at this time. Alternatives and recommendations are then made to management. The approved alternative provides the project management guidelines for further development. The more definitive these guidelines are made, the more accurate the estimation of costs, time, workforce requirements, environmental impacts, and the greater the credibility with the public will be. It must be emphasized that care must be taken not to constrain the project designers. It is easy to establish objectives and guidelines that cannot meet the field conditions, and that inhibit the creativity and expertise of the designers.

Project planning includes the following eight steps:

1) Review and refine the project definition as information is gathered and analysis is accomplished.

2) Establish final project expectations.

3) Determine costs, workforce required, and time.

4) Identify risk and uncertainty areas.

5) Determine technical, environmental and economic feasibility.

6) Analyze alternative systems to accomplish project goals and objectives.

7) Determine jurisdictional, political or social requirements and impacts.

8) Document and communicate project guidelines for design, and construction, and operational criteria, elements, and standards.

Several documents are generated upon completion of the planning phase. These documents essentially compose a project contract for the design phase. Minimum documentation for the Planning Phase would include a design narrative, an engineering feasibility report, an assessment of the environmental impact, projects costs, timeline for completion, and a determination of workforce requirements. These documents need to be critically reviewed and analyzed prior to undertaking the next phase of project development as they provide the management direction for the remainder of the project life-cycle.

DESIGN OF THE PROJECT

The purpose of the design phase of a project is to integrate the technical information, management direction, environmental issues and constraints, legal requirements, and social and political concerns into a design or a plan to achieve the objectives.

Design is the art and science of planning the modification of an environment, through technology, to meet a defined goal or objective. The documentation of the design may appear in differing forms such as technical drawings, sketches, or narrative statements. It simply describes a method or a process that is intended to achieve a desired end.

Communication is vital to the design process. More projects incur difficulty at this phase of development than at any other. The designer must interpret the direction and guidance determined during the planning phase into a technical project plan. There are several factors that influence the final result including design problems, solutions, and the design process itself.

Design problems cannot be completely determined or anticipated during the planning phase. Several new problems will arise as the process of project design proceeds and should be expected. Project designs also require the subjective interpretation by the designer(s), and that interpretation is subject to the variability of the designer's experience and training. Design problems are vulnerable to the domino effect. A subtle change to the design of one aspect of a project could create repercussions in several other parts of the project.

Design solutions are as variable as the designer and management. Several factors influence the design solution including how the initial problem is documented, interpretation of the problem, availability of data, policies and guidelines. Optimal design solutions do not exist. Design solutions are a compromise of management direction, issues, concerns, legal requirements, technology, and funding.

The design process itself is never ending. Each time the design is reviewed by the designer, management or an independent designer or team there is always room for refinement. Refinement may occur in interpretation of the design criteria, elements or standards, or it may be the newest in technology.

A variety of methodologies may be used in the design process and there is no one totally correct process. There are several ways to approach design solutions that may differ based on workforce, available information, training of the designer, as well as other variables. The design process not only solves problems, it finds new ones and occasionally creates some. Design is an iteration of defining problems and creating solutions and as such they must develop simultaneously.

Project design requires not only objective solutions but subjective value judgement. The designer must not only constantly evaluate the design solutions for technical adequacy, but also how well the solution meets the less technical objectives of a project such as how well the project fits the social, physical, and environmental setting.

Design is a prescription of technologies to achieve a solution to meet the management objectives. Often the design process is considered to be a scientific methodology for seeking a solution. One of the principles of science is that the solution is singular and may be duplicated given the same assumptions and information. Designers on the other hand can, under the same set of assumptions and information, formulate different solutions.

The design process must work toward the need for action within a specified time constraint. Neither design process nor the design is an end unto itself. The project is not complete until it has been implemented.

A problem that designers must confront is finding solutions to the management objective, including the new problems, within the constraint of time and budget. Designers must make compromised decisions that are often based on inadequate information. Time and budget constraints often do not allow the luxury of project delay to gather more information. The unfortunate situation for designers is that their solutions are perceived as concrete answers when in reality there are many possible alternatives.

The design phase of project development is completed when the designer, project manager, and management have agreed upon the overall plan, including the technical drawings, specifications, and cost estimates to implement the project design.

IMPLEMENTATION OF THE PLAN

The objective of the implementation phase of project development is to complete the project in the field. This requires that the design be translated from paper to the physical modification of the environment on the project site.

In theory, this should be the simple application of the technical drawings and specifications to the field conditions. Reality often complicates this phase with differing site conditions, technical innovations or requirements that do not prove out, and material and supply problems. Often there are problems that are generated outside of the technical realm of project design such as the unavailability of specified materials, key products no longer available, labor issues, or unseasonable weather conditions.

Project personnel involved with the implementation of designs must be knowledgeable about planning and design goals, objectives and all criteria. This phase of project development allows very little time for consultation or the luxury of extensive alternative analyses.

MAINTENANCE, MONITORING, AND EVALUATION (OPERATION) OF THE PROJECT

The operation phase of a project begins when construction is completed. Arguments can be made that this occurs only when all of the goals and objectives are operating as planned. For purposes of this process the operation phase begins when the project has been accepted for use.

Maintenance, monitoring and evaluation are ongoing activities that continue during the life of the project. Time and changes in market conditions may warrant adjustment in the original project objectives.

Maintenance program objectives are to keep the facility operating at the level intended by the management objectives and constructed project. There may be minor technological changes but the project still meets the original management objectives.

Monitoring is a program of inspection to determine whether the objectives continue to be met. It may consist of technical inspections, observations of activities or additional follow-up market research.

Evaluation is an analysis of the maintenance and monitoring programs. The purpose of evaluating the project is to determine how well it is meeting projected costs, intended use, and environmental and management objectives.

PROJECT MANAGEMENT ORGANIZATION

Project Management may be organized in various configurations. Project size, uniqueness, and delegated authority are major factors in determining the formalized organizational structure. Policy and regulations governing Forest Service activities have a strong influence on the amount and type of authority that may be delegated.

The Project Management Institute (a professional society of project management and associated disciplines) recognizes five forms of project management organizations: Functional, Project Expeditor, Project Coordinator, Projectized and Matrix. The significant difference in these organizations is the authority and responsibility of the project manager.

The Functional Organization is the most common in use today particularly in the Federal Government. It based on management theories of task specialization, line and staff divisions with approximately equal lines of authority and responsibility, and limited spans of control. The principle behind the "Doctrine of Specialization" is that management of specialists is easier if they are grouped together and supervised by individuals with similar experience and training.

Functional organization difficulties start with the multiple project environment. Conflicts are generated over the priorities of differing projects competing for the same limited resources. Project team members emphasize functional specialities causing deterimental effects to the overall project. There is no motivation to do otherwise as their career paths lie in the functional, specialized organization. Project Managers have no formal authority relying on interpersonal skills and the informal power organization to accomplish projects. Still, many organizations including the Forest Service do complete projects within these constraints.

The Project Expeditor organizational structure is similar to the functional organization but has little formal authority. The project expeditor is assigned directly to a line officer or staff who ultimately has responsibility for the project. Team members remain assigned to their respective functional areas and perform work on an as needed basis.

The Project Coordinator organization is derived from the project expeditor's and functional organization structures. Authority is given to the coordinator through assignment as a full staff member of the organization. Team members are still assigned to their functional areas. Motivation of personnel is still difficult and people skills are needed for persuading other department managers and staff as well as facilitating problems and communications.

This type of organization has fewer coordination and communication problems and generally accomplishes assigned projects in a timely manner. The coordinator does not have full authority for the project but can make some limited decisions expediting project progress. Project loyalty is much higher than the previous organization structures.

The Projectized organizational structure gives total authority to the project manager. The functional organization is still used, but the project manager is given full staff status and recognition. The project team is composed of personnel reassigned from the functional disciplines to the project manager. The project manager retains the flexibility and responsibility to acquire the necessary resources for project completion subject to the time, budget, and performance standards identified as project targets.

Project organizations establish a unity of command and promote effective informal communications with the project manager and among team members. Project loyalty and morale are generally very high. It does create some other problems including duplication of facilities and inefficient use of resources. Some resources may be committed for extended time periods when they are not necessary or there is the perception that they could have been used more effectively elsewhere in the functional organization. Another problem is that all the team members work themselves out of a job and must be reassigned to their previous unit, assigned to another project, or released. These issues should be recognized and dealt with by management prior to using the projectized organizational structure.

Neither extreme end of the delegation of authority, the functional nor the pure projectized organizations, are used in reality. The project manager typically possesses some but not all of the functional authority for coordination and integration of project activities. The organization structure that would be the best for the project and the parent organization is dependent on the project manager's control over resources and in particular the workforce.

The Matrix organization combines the functional and projectized organization into one formal structure. Matrix organizations may be classified as strong or weak. Strong and weak are not judgements of the organization effectiveness but rather how the balance of power is distributed between the project manager and the functional staff. A strong matrix organization has the balance of power shifted in the project manager's direction while a weak organization favors the functional manager.

Three factors effect the balance of power: admimistrative relationship, physical relationship, and time spent on the project. The administrative relationship involves what hierarchical level the project and affected functional managers report to and the backing they receive from top management. The physical relationship concerns the physical distances between the various people involved. The third factor is the amount of time spent on the project by the respective managers.

The advantages of the matrix organization are:

1. Project objectives are highly visible.
2. Improved control for the project manager.
3. Coordination efforts are improved across functional lines.
4. Improved communications.
5. Termination of the project does not have the associated problems of a projectized organization.

Some disadvantages are:

1. Project personnel report to more than one boss.
2. Monitoring and control are complex.
3. Differing priorities between functional managers and the project managers.
4. Duplication of efforts by each project organization.
5. Conflicts with resource allocations and project priorities.

No one form of organizational structure will solve all of the problems of project management within a large organization. Each one has to be customized to fit the needs of the organization and the particular project(s).

The Forest Service uses all of these organizational structures. Capital investment projects, particularly recreation projects, use forms of the project expeditor and to some limited extent project coordinator organizations. The projectized organization is used for high-cost, short-term projects such as fire suppression or catastrophic recovery projects.

ANALYSIS

"In contrast to timber management with it's sharply defined routine, recreational planning has been typically rather loose and amorphous.

Glen O. Robinson, 1975

ANALYSIS

The existing process for recreation, facilities, and trails capital investment project development in the Pacific Northwest Region (R-6) has been in field use for approximately three years. Informal discussions with line and staff officers, project and program managers, and technical and resource specialists have identified three general areas of concern with the process as it is currently defined. These concerns are the decision-making process, the process associated with project development, and the management and implementation of the process. Impetus for review has also come from field experience with project implementation on several National Forests and Congressionally Designated Areas.

CURRENT MANAGEMENT SITUATION

The process currently being used by Region 6 for the development of recreation projects was formulated in 1988 by a Regional Task Force. The draft effort of that task force was issued for field use in 1989 to all Pacific Northwest Region Forests (see Appendix).

Several Forests, including the Willamette, Rogue River, and Gifford Pinchot National Forests, had previously developed processes individual to their units. Terms and procedural steps were somewhat different, but the intent was the same and the need for a Regional policy was emphasized.

Other Regions, particularly the Northern Region (R-1), the Southwestern Region (R-3), and the Pacific Southwest Region (R-5) have also prescribed similar project development processes. Comparatively the processes all have two objectives: a systematic means for decision making and methodology for funding project development. Although not primary objectives, communications, and project management techniques were also derived by formalizing of the project development process.

R-1 and R-3 have definitively documented their processes using the Directive System and a technical publication. These procedures incorporate a decision process with the budget instruction. The procedures have commonality in the use of a "gate" system or phases. R-1 uses seven major gates with several subgates whereas R-3 uses a five phase system. Both systems describe in various levels of detail steps and expected products. R-5 outlines their process and has used the budget process to guide project development. It is a very useful document in the technical aspects of site design.

Each of the Regions has described different resource emphasis areas in the project development process. R-1 requires that Recreation, Trail and Watchable Wildlife use their procedures. R-3 has included Fire, Administrative, and Other (FA & O) projects with recreation facilities. It can be concluded that the process of gates or phases currently used by R-6 is a valid procedure. It can also be surmised that any resource or facility project may be developed using this methodology. The process or the logic of it has applicability to roads and bridges not associated with timber harvest activities.

The canvass of R-6 Gate System users generated positive comments about the process as well as revealing a need for clarification and some modifications. The overall concept of the process is good and generally well accepted. It is particularly useful to those units with major projects, earmarked funding, or partnerships. The process appears to have the basics for improved project management techniques. Other disciplines have expressed an interest in using this concept for capital investment projects in their respective areas such as engineering for road and facility development.

There is some confusion among the various users as to the Gate System's actual function. It has been described as a decision process, a design guide, project development guide, a budgeting process, and a tracking mechanism. It is all of those. Projects are the specific criteria and physical implementation of the

Forest Land and Resource Management Plan. The "Gate System" provides a process to implement and manage selected projects. In other words it is Project Management.

Additional requirements have been made of the "Gate System". These requirements include a process for allocation of funds and a monitoring process for reporting progress to interested parties. In this case it functions as a Program Management process.

The following is a detailed review of the current draft of the Region 6 Recreation, Facilities, and Trail Development Process. The analysis will follow the sequence of tasks identified on the R-6 Recreation, Facilities, and Trails Development Process flow chart (Exhibit 1), and reference its accompanying narrative supplement (Appendix). Emphasis will be in three areas: 1) the logic and clarity of the process, 2) funding of project development, and 3) management of the process.

PROCESS REVIEW

PHASE 1 - PROJECT IDENTIFICATION

(See Exhibit 3)

Forest Land and Resource Management Plan: Initiation of development projects is the responsibility of the Ranger District, and in some instances the Supervisor's Office. The principle source of project ideas is the Forest Land and Resource Management Plan. The Recreation Implementation Schedule includes a priority list of projects that represent actual and projected needs. Projects proposed for funding must be identified in the Forest Plan, or be in direct support of it.

The function of the Forest Plan is to provide strategic planning advice answering the questions "Where are we?", "Where are we going?", and "How are we going to get there?". Goals and objectives for improved quality, and goods and services are broadly stated, and areas of emphasis may not be well defined. Implementation schedules or operational plans may be incomplete or untimely. Specificity is not sufficient for identification or comprehensive enough for definition of individual projects.

Project proposals are made to correct an existing problem or to take advantage of a perceived opportunity. Delineation of project scope is generally limited to a functional area and often only proposes treatment of a symptom rather than resolution of the contributing problem. Preliminary cost estimates are made based on a very limited scope and do not account for the domino effect of impacts on other resource needs. Complete project definitions are deferred until the Phase 2 - Feasibility and Survey.

A second limited source of project proposals comes from outside the agency. Other governmental agencies, individuals, or special interest organizations propose projects that appear to be complete, well-conceived and often have partnership funding accompanying them. The Agency's efforts to reward these interested parties with implementation of their proposals can create problems of opportunism. Issues raised by unquestioning acceptance of such proposals include whether the project supports the Forest Plan -- how the project fits into the overall Forest goals and objectives, workforce requirements, timing, and in what priority.

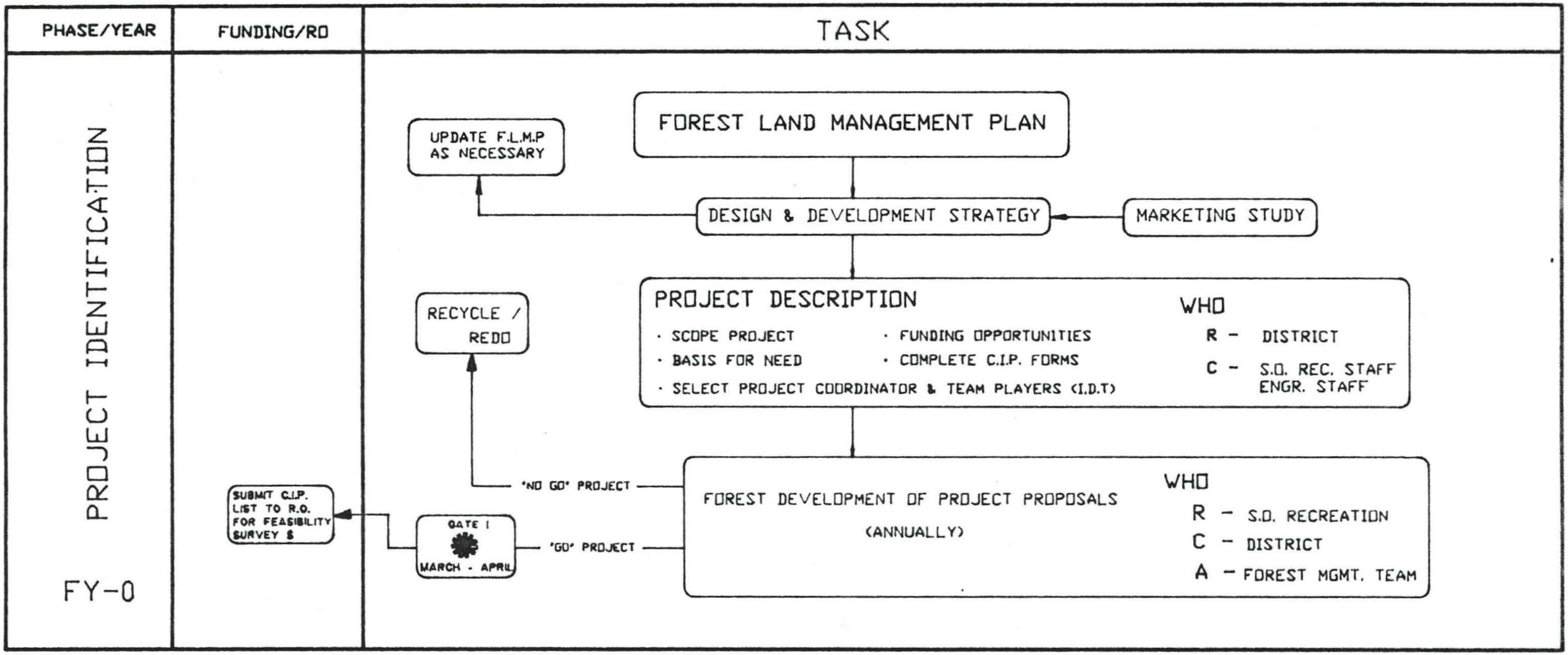

PHASE/YEAR
FUNDING/RO
TASK
PROJECT IDENTIFICATION
FY-0
FOREST LAND MANAGEMENT PLAN
UPDATE F.L.M.P AS NECESSARY
DESIGN & DEVELOPMENT STRATEGY
MARKETING STUDY
PROJECT DESCRIPTION
· SCOPE PROJECT
· BASIS FOR NEED
· SELECT PROJECT COORDINATOR & TEAM PLAYERS (I.D.T)
· FUNDING OPPORTUNITIES
· COMPLETE C.I.P. FORMS
WHO
R - DISTRICT
C - S.O. REC. STAFF ENGR. STAFF
RECYCLE / REDO
'NO GO' PROJECT
'GO' PROJECT
GATE 1
MARCH - APRIL
SUBMIT C.I.P. LIST TO R.O. FOR FEASIBILITY SURVEY $
FOREST DEVELOPMENT OF PROJECT PROPOSALS
(ANNUALLY)
WHO
R - S.O. RECREATION
C - DISTRICT
A - FOREST MGMT. TEAM

EXHIBIT 3

PHASE 1 - PROJECT IDENTIFICATION

Design and Development Strategy: As presently described, this step "provides management direction for a particular need" that may be defined by geographic setting, interconnected use areas, or land use allocations. This means "second-level plans" including Integrated Resource Analyses, Composite Area Plans, or Forest Strategy Studies. This work, to be initiated by Forest or District planners, would provide a more comprehensive and better integrated basis from which to draw individual development projects. Few "second-level" plans have been completed to date. In practice, site-specific project ideas are conceived by one or two people, such as the Resource Assistant, Recreation Assistant, Planner, or Technicians, who have spent minimal time defining the project goals and objectives. These individuals become the "Project Champions". Generated from a limited or functional perspective, these projects are narrow in scope.

Marketing Study: A Marketing Study is another requirement shown on the flow chart but not explained or defined in the accompanying documentation. The separate placement of the task on the chart, opposite "Design & Development Strategy" and equal to it in size and type font, suggests a priority for accomplishment and added emphasis on the activity. However, the lack of guidance on what is expected and how to do it has resulted in regular omission of this step.

Resource management personnel have a poor understanding of marketing concepts. For many, it has a negative connotation associated with "Madison Avenue", selling and advertising. The perception of marketing is changing in the Forest Service albeit very slowly. Given the level of understanding of marketing at the time, the requirement for a "study" may have created a semantic barrier. People misinterpret the term "study". It conveys an expectation of a large, difficult, expensive and complex report. There is a definite need to do market analysis and assess what the various publics may desire or what they expect, but that relatively easy task was not communicated clearly.

Project Description: The Project Description requirements are generally well understood with the exception of Scope of Project, Basis for Need, and Funding Opportunities.

Scope of Project: Scope of the project is not to be confused with the National Environmental Policy Act (NEPA) requirement for scoping. The activity is displayed on the flow chart and is implied in the narrative with items to consider such as objectives, direction and guidelines. Determining the scope of the project is one of the most critical aspects of project definition. Proper and complete documentation would alleviate much of the frustration and confusion in later phases as well as expedite project development. Additionally, there is no requirement for an extensive project definition anywhere in the process. It appears to be assumed that it will be done. The most complete project definition is in Phase 2 during the NEPA process. This lack of clarity can, and does, affect project progress.

Basis for Need: As depicted on the flow chart, Basis For Need indicates a justification of the project and the narrative explanation requires a summary of why this project is needed. This suggests that a detailed justification statement has been made.

The Basis for Need describes or justifies why a project is needed or desired. Most projects are proposed to rectify a maintenance or operational problem or to correct a health or safety situation. Other bases for need may include mitigation of environmental concerns, legal mandates, or replacement of non-standard or aged facilities. There are fewer project proposals for new construction, expansion, or enhancements of existing facilities. These projects are substantially more costly, and often are supported by a weaker justification. The basis for need, e.g. to correct a capacity problem, may address only a localized peak condition, or may respond to a long-range shortage category goal, but does not acknowledge economic priority.

Market studies are generally thought to establish a need or more clearly define user expectations. Project proposals that are submitted based on market studies are using the results as a justification. This again reveals the confusion about what is required for either a basis for need statement or market study. The Gate System narrative not only does not clearly define the content of the expected products, but also provides no explanation of how the two products differ or how they relate.

The justification or project expectations and goals must be clearly defined to allow management to evaluate the worthiness of proposals. This is especially critical when budgets need to be stretched as far as possible and when considering facility expansion or additional new facilities will strain the operation and maintenance (O & M) budgets even further.

The current process does not require an economic analysis, including life-cycle costs, except by inference in the NEPA process and in the engineering feasibility report. A partial analysis may be done through the Value Analysis, if that option is chosen. The Forest Service's ability to maintain these facilities after they have been constructed is a major concern expressed by both personnel involved in project development and some user groups. It is considerably easier to get facilities constructed than it is to maintain them within O & M budgets. Projects are often proposed that are viable and necessary but do not fit within the unit's ability to maintain them. This is especially true of projects that have outside partnerships involved or respond to special emphasis programs or are politically mandated.

Funding Opportunities: Funding Opportunities is another task in Project Description that is not very clear to field personnel. The identification of appropriate funding sources is inferred, but the intended activity, e.g. analysis of all available funding programs, is not delineated. Consequently, results are quite variable. Specialists who propose projects generally take a narrow view of the project need based on a technical or resource concern. District as well as some Supervisor's Office personnel do not understand the range of available funding programs and their purposes. Similarly, the concepts of companion projects and complementary projects may not be fully understood. Opportunities are missed to multi-finance project development. Multi-financing projects provides a more efficient use of available development funds. This would allow more effective use of technical and resource personnel, could reduce environmental impacts, and make remaining program funds available for other purposes. Opportunities for interpretation, wildlife viewing, road improvement as well as others are often overlooked, or recognized only in a later phase of project development. Funding Opportunities are addressed to a limited extent (companion funds) when completing required project proposal forms. There is also a tendency to focus on a single funding program for an individual project to the exclusion of other funding opportunities, including cost-sharing (partnerships). The R-6 Trails program has recognized this and weights evaluations towards projects with partners.

Capital Investment Project Forms: A perception persists that completion of the C.I.P. forms will meet the requirements of the Project Identification phase. The main objective is to obtain enough information to get the project accepted in the Forest and Regional Programs. The direction given in the narrative is to do an analysis of the management situation and provide an initial proposal to resolve the determined needs. The short timeframe for submission, heavy workloads and multiple high priority demands on field personnel all contribute to meeting this minimal standard for project proposals.

Limited time and funding, poorly defined procedures and products, deferred activities, focus on completing forms, and failure to enforce requirements all contribute to less than adequate project proposals. Analysis of need and a clearer definition of the project are deferred to Phase 2 - Feasibility and Survey. Consequently, many projects are not very well defined at this point. Without clear project definition, preliminary cost estimates are inevitably conservative. Optimistic proposals are also made because of the limited involvement of other technical and resource specialists as well as line and staff at this phase. The lack of an interdisciplinary approach by many units in the project identification phase results in limited functionally-focused proposals. Opportunities for alternate or additional funding are missed as well as early identification of resource issues. Project proposals that are conceived without employing an interdisciplinary approach or extensive review result in higher costs, ineffective use of project development personnel and delays in project implementation. These higher costs are caused, in part, by additive restrictive resource mitigation rather than incorporation of the resource needs as an opportunity.

Project Coordinator/ Interdisciplinary Team: Project Description recognizes the need for project management by including selection of the project coordinator and the interdisciplinary team as part of the procedure. This step is not routinely taken with the exeception of major projects. In many cases, the District Ranger acts as the coordinator and names the team during Phase 2. The technical complexity, legal and regulatory requirements for current projects suggest that a more formalized approach may be necessary to manage even the smallest of projects.

Forest Development of Project Proposals: The Forest Development of Project Proposals is the final step to completing Phase 1 - Project Identification. Forests must evaluate and rank projects in priority order. Guidance for prioritization generally comes in the call for project proposals. This periodic request permits the Region to add or change program area emphases, and allows for evaluation of responsive projects. For instance, there might be a program emphasis for reconstructing facilities to meet the Americans with Disabilities Act or a technical emphasis regarding toilets. Generally, the prioritization will be based on environmental, health and safety, deferred maintenance, occupancy and use, and legally or politically mandated issues.

All activities associated with Phase 1 - Project Identification are funded from recurrent Forest funds (NFRM). The Forest or District is responsible for allocating funds to accomplish the planning as part of the annual program of work. The various resource programs that are involved are required to charge against those work activities. In other words, if a Wildlife Biologist is needed to consult on the project proposal, that work is charged to the Wildlife Program.

Completion of the above steps and approval by the Forest Supervisor meets the requirements to pass Gate 1 of Phase I. The Gate System, as written, does not provide direction for or definition of the expected products. Except for the C.I.P. forms, which are subject to change, any further requirements are not explicit until the request for project proposals or updates is made. This letter is issued in January for project submittals due the following March. Any additional requirements, particularly those entailing additional field data may cause undue impacts or incomplete proposals. Few units have the capability to gather additional field information because of climatic conditions or limited available workforce to do additional data compilation and analysis at that time of the year.

PHASE 2 - FEASIBILITY AND SURVEY

(See Exhibit 4)

Projects that have been accepted as part of the Regional Capital Investment Program proceed to Phase 2. Funding for project development follows in the sequence as remaining phases of project activity are completed. The allocation of funds for Feasibility and Survey is dependent upon project scheduling in the Regional Program. Because project scheduling is a function of rank order and availability of "uncommitted" program funds, there is usually a lag time between Phase 1 and Phase 2. If the project is not accepted, it is sent back to the Forest with comments explaining the project status.

At present, the NEPA process is funded from capital investment dollars, as part of Phase 2. However, NEPA is a planning task and is appropriately funded from recurrent funding (NFRM and comparable other resource activity codes) as is Phase 1.

An informal overview of Phase 2 projects has shown the following tendencies:

1) Estimated technical, resource, and administrative support funds are inadequate to complete all the necessary analysis and conceptual designs.

2) Estimated environmental impacts were overly optimistic or in some cases were not considered at all.

3) The original scope of the project has changed significantly.

4) Design and operational objectives were ambiguous.

5) Social and political impacts were not considered or were underestimated.

NEPA Process: The interdisciplinary process outlined in the National Environmental Policy Act is used for analysis and documentation. Additional activities include preparation of design narratives, conceptual design, and engineering feasibility reports.

The narrative supplement to the Gate System flow chart describes and defines this phase better than Phase 1 explanations. The expected products and techniques are generally well understood and their objectives are clear, with the exception of the Design Narrative and the Engineering Report. There is confusion and uncertainty about these documents. There are no stated standards for document content and format. As a result, end products are of highly varied quality and completeness. Ambiguous Design Narratives cause other problems: Engineering reports are dependent upon the direction and information, designers lose time defining project requirements, and contracting or "farming out" the work may be delayed or require unnecessary adjustments.

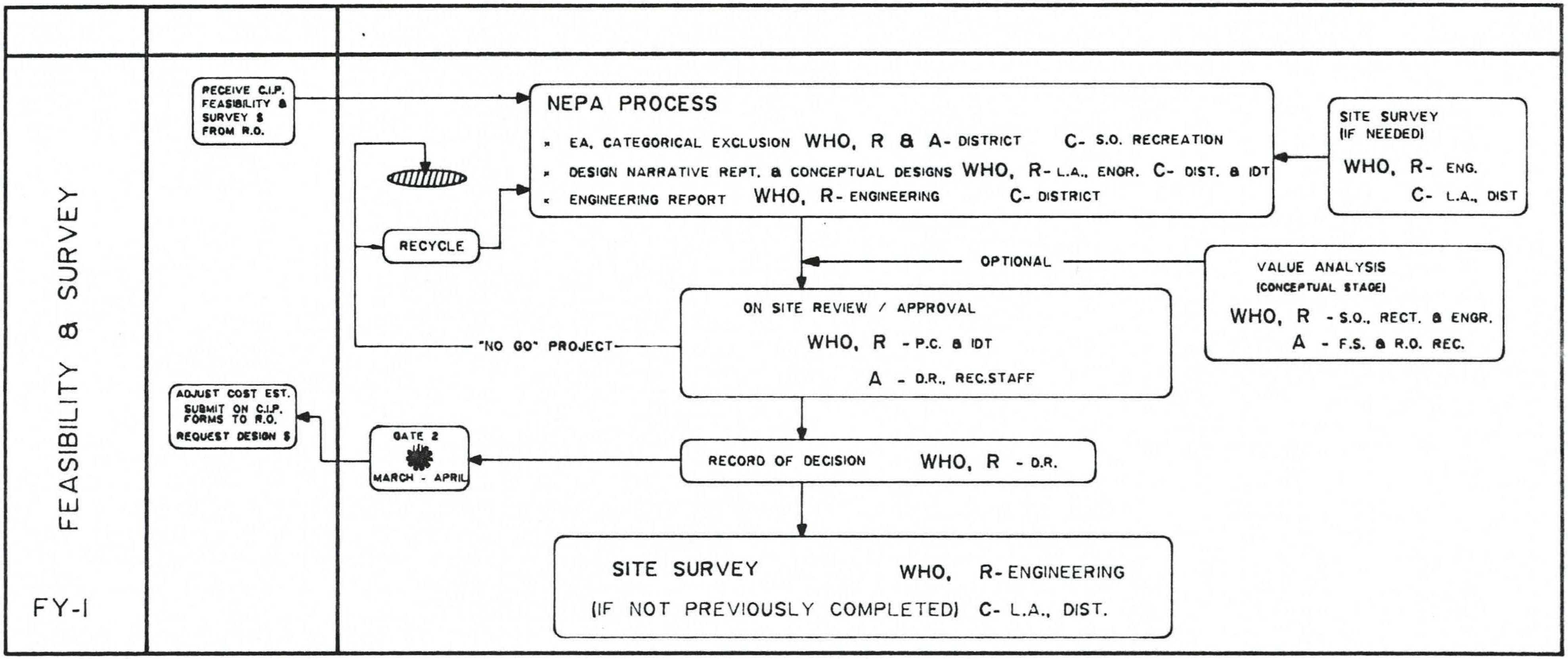
The criticality of project identification and definition becomes apparent at this phase of project development. Field work is limited to the original project concept, and consequently, intensive investigations are delayed until preliminary designs are accomplished to use the limited resources effectively. This may cause delays in project development until refinement better defines needs. For instance, during the preliminary planning a material source for construction was determined to be suitable for quantity and quality. However, subsequent designs altered those requirements. Depending on the timing of the decision, those changes could cause a field season delay in completing the project, and alter the cost significantly.

Conflict arises from information specificity and timing that interdisciplinary teams desire to use for analysis. The generality that the conceptual designs contain often cause miscommunication of anticipated environmental impacts. The Gate System indicates that cultural resources and threatened and endangered species surveys should be conducted during this phase. Often the surveys and any necessary evaluations are not completed in time for the data to be used in analysis of the alternatives.

Analysts and resource specialists strive for very specific information that may be difficult to obtain in this phase. For example, the potential impacts on cultural resources may vary among alternatives, and while the general effects of each alternative may be estimated, the corresponding mitigation measures cannot be designed with the specificity required. Mitigation measures vary greatly depending on whether or not a project will require excavation or embankment (fill). These specifics may not be known until the design phase is completed.

Design Narrative: The design narrative describes the project design criteria including the inventory and analysis of existing physical conditions, historical and current site use, design objectives, management direction, specialist input, alternatives considered, and the preferred alternative. The design narrative may be independent of the project analysis as in the case of a categorical exclusion, or it may be incorporated into an Environmental Assessment or Environmental Impact Statement.

Incomplete design objectives and criteria are a significant problem. The analysis team is constantly receiving refined resource objectives and concerns based on concurrent field examination as the project develops. These refined objectives are generally considered insignificant changes and are perceived to have no effect on the original scope of the project.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RECEIVE C.I.P. FEASIBILITY & SURVEY $ FROM R.O.
NEPA PROCESS
* EA, CATEGORICAL EXCLUSION WHO, R & A- DISTRICT C- S.O. RECREATION
* DESIGN NARRATIVE REPT. & CONCEPTUAL DESIGNS WHO, R- L.A., ENGR. C- DIST. & IDT
* ENGINEERING REPORT WHO, R- ENGINEERING C- DISTRICT
SITE SURVEY (IF NEEDED)
WHO, R- ENG.
C- L.A., DIST
RECYCLE
OPTIONAL
VALUE ANALYSIS (CONCEPTUAL STAGE)
WHO, R - S.O., RECT. & ENGR.
A - F.S. & R.O. REC.
ON SITE REVIEW / APPROVAL
WHO, R - P.C. & IDT
A - D.R., REC.STAFF
"NO GO" PROJECT
ADJUST COST EST.
SUBMIT ON C.I.P. FORMS TO R.O.
REQUEST DESIGN $
GATE 2
MARCH - APRIL
RECORD OF DECISION WHO, R - D.R.
SITE SURVEY WHO, R- ENGINEERING
(IF NOT PREVIOUSLY COMPLETED) C- L.A., DIST.

EXHIBIT 4

PHASE 2 - FEASIBILITY AND SURVEY

Currently, there are no standards for the expected product format of a design narrative. The instructions identify what kinds of information should be contained in the design narrative, but guidance is very general in nature. There is still confusion in the field units as to what this document should contain and to what level of detail. As a result, individual units or line officers determine what format and detail that information will be in. This provides greater opportunity for creativity and "getting out of the box", but it also allows for items to be overlooked or intentionally disregarded.

In addition to product variability, the lack of content and format standards allows line managers to defer decisions regarding management objectives until a later project phase. The problem with decision deferral may be facetiously stated as "I know what I want when I see it", but the trial and error approach that results is costly in time and dollars. Project planners cannot work efficiently and effectively without defined objectives: much time and energy may be wasted attempting to meet unspecified expectations.

There are several reasons for the lack of definitive management objectives for recreation sites. In many cases, the management objectives are considered to be intuitively obvious. Another major problem is communicating the issues, concerns and opportunities and the alternative solutions between technical staff and management. Limited time for reviews and discussions coupled with a failure by management to clearly convey what is expected, broad-based guidelines and a lack of common terms and understanding of the technical implications of projects lead to delays and significant changes. Line officers must focus their attention on those problems that are most immediate in a variety of resource areas. Other project and program priorities often take precedence over recreation site planning and design decisions. Site planning decisions are deferred until the last possible moment, when the development project itself becomes a "brush fire". Multiple "highest" priorities, crisis management, a long-standing agency bias on the relative importance of recreation development, and a perception of an extended timeframe for project planning all motivate deferring decisions on management objectives.

The design narrative should address the specific issues of what type of sanitation system is to be used, what architectural style is required, or even desirable, and what type of water supply system is acceptable. Currently, the Recreation Opportunity Spectrum provides general guidance on suitable technologies, density of facilities, intensity of site modification, and appropriate materials by ROS class, but without definitive management objectives, the specific issues of the site cannot be adequately addressed.

Conceptual Designs: Conceptual design requirements are generally understood by the technical field personnel. The narrative explaining the Gate System describes the requirements sufficiently to accomplish this task. The major area of concern in this step is providing the resource specialists sufficient information to analyze the impacts and to estimate mitigation requirements.

Engineering Report: The Engineering Report analyzes the alternatives with respect to the technical requirements of the project. The format is not standardized but analysis must respond to the Design Narrative requirements for such things as water and sanitation, materials, trail construction, structures, or maintenance needs. The principles are understood but as with the Design Narrative the level and specificity of analysis are not addressed.

Value Analysis: Timing is also very critical to have effective value analysis of projects. The value analysis in the conceptual phase is identified as optional on the flow chart. The option to defer a value analysis is often exercised, because the value analysis is perceived to be more difficult without the quantitative data that are developed later, and because project personnel do not feel sufficiently prepared to present the alternative concepts for outside scrutiny. The possible consequences of this deferral are twofold. The benchmark cost estimates are prepared without the input of this evaluative review, and may be conservative. Project modifications recommended in a later value analysis could have been anticipated and incorporated into the benchmark estimates and into the design, without costly redesign. Compressed planning time lines and delays usually put the project against deadlines, and field units are not able to take full advantage of the value analysis program. In addition to the timing problems for performance of a value analysis, detailed project reviews on site are not always accomplished at this phase.

On Site Review: The On-Site Review is one of the more critical steps in communicating the technical design concepts with management direction and resource concerns. Omitting the review at this step of project development defers the opportunity to revise or clarify criteria and objectives to Phase 3 - Design. Revisions at a later date may be more expensive in terms of time and personnel needs as well as delaying implementation. Additionally, information may be lost as the project transitions from planning to design.

Few R-6 recreation development projects are managed according to any defined process of project management. Weak or nonexistent project management becomes evident in the Feasibility and Survey Phase as inadequate estimates of costs, time and workforce needed to complete all necessary work activities in a coordinated and timely manner and scheduling problems begin to affect project development.

Delays caused by such items as redesigns or budgets that may or may not have a particular project funded for that year make it difficult to incorporate timely site reviews and value analysis. Scheduling these important work activities is a function of realistic project management coordinated with program management. It is matter of planning the project with consideration for budget delays and seasonal fluctuations as well as conflicting priorities for management and technical assistance.

Record of Decision: The Record of Decision is well understood and accepted. Its significance is that the analysis and alternative selection provides the most updated cost estimate. This cost estimate is most important as it establishes a benchmark for project funding. This decision point, also known as Gate 2, is extremely critical to the project.

The principle problem is determination of funding needs. Overestimation of costs and mitigation could cause the project to be significantly altered in concept or in planned time for implementation. Underestimation could cause severe impacts on the Regional program. The tendency is to take the underestimation or to be optimistic regarding project impacts. This approach is qualified with appropriate references to standards and guidelines should the assumptions be in error.

Units that depend on capital investment funding to proceed with project work be adversely affected by the timing of project fund allocations. If the feasibility and survey is scheduled for completion in a one year period and allocations are not received until February, a delay of as much as one year will result. The other option is to take risk and estimate probable field conditions. Valuable field time is lost when funding or assurances thereof are not received prior to winter. Some units in Region 6 cannot access and properly review field projects for four to six months of each year because of ground conditions.

The field units need to be more cognizant of these factors in the preliminary and final planning of project activities. Funding allocations or at least the approval of the work activities need to be disbursed as quickly as possible. The political reality is that this may not always occur, therefore, time lines will have to be adjusted.

As currently scheduled, there is a critical flaw in the Gate System at Gate 2. The problem is synchronization of the project cost updates with the budget cycle: the two processes do not mesh. The project is programmed for funding in consecutive fiscal years. The Design Phase follows Feasibility and Survey in sequence, with funding available in the second fiscal year. Adequate design phase funding is dependent on the cost updates submitted at Gate 2. These cost estimates are also important for total project funding because they become the benchmark the 20% project cost increase tolerance.

The Gate System requires the cost updates to be submitted in March or April, at the end of the Feasibility and Survey Phase (two quarters into the second fiscal year). This timing is based on a "work year", with an allowance for a field season to accomplish any necessary field work plus a Fall and Winter to complete and document the NEPA process.

The budget cycle, for the year in which Design is programmed, is about six to nine months ahead of the Gate Process. The project must either be funded for design based on the conservative preliminary cost estimate submitted with the initial project proposal and the Design Phase extended, or the project must be delayed, losing a field season, to receive adequate funding the following fiscal year. In either case, there is a lag time when the project team and any workforce is unfunded.

Phase 2 also includes site survey as the final step. Requirements for the survey standard are determined by the needs of the facility design objectives. These are standard practices in the survey field. It is not a requirement of Phase 2 that the survey be complete, but completion is necessary before the actual design work may take place.

In summary, Phase 2 projects must be intensively analyzed and refined prior to proceeding to the design phase. It is very apparent that the analysis accomplished in Phase 2 entails the most important aspects of project development. Mitigation measures for environmental impacts, design guidelines and criteria, and project cost estimates are established during this phase.

PHASE 3 - DESIGN

(See Exhibit 5)

The Design Phase of project development translates the objectives, management direction, environmental concerns, mitigation measures, and technical requirements of the planning phase. This phase of the current process is well understood and applied.

Informal discussions with various field units have indicated three areas of concern in this phase of project development. These are the Design Prospectus and Narrative, Site Reviews, and Timing of the Value Analysis.

Site Development Plan: The design narrative generally documents the design criteria, elements, and standards that compose the objectives agreed to or contracted with the Ranger and or Forest Supervisor. It is used internally to frame the site development plan.

Without agreement on a single standard product, the design narrative takes a variety of forms. One frequently employed form consists of a set of verbal instructions that accompany the NEPA documentation. Limited design objectives and requirements will be found in the documentation associated with the NEPA analysis and recommendations. This minimal standard is applied to a majority of Forest Service work. These supposedly "standard projects", including rehabilitations, reconstructions, expansions, or sites with a lower scale of development are considered to be routine in nature.

Project coordination tends to be informal, and new ideas for additional facilities, site enhancement or improved technology may be injected into the design process. In these ways, standard projects are also more susceptible to significant cost increases and delays. In the same ways, the identified Recreation Opportunity Spectrum (ROS) class guidelines may be exceeded incrementally, and the end product will not suit the setting.

The design prospectus is an external document that is essentially used for the purposes of contracting the work with private designers. The design narrative and design prospectus serve the same purpose of communicating the management direction for the project to the designer. Other than contract language and specifications the documents should contain the same information regardless of the design team.

Funding for design for recreation facilities and trails is allocated through the Regional Capital Investment Program based on budget requests from the field units. Allocations are based upon the preliminary project submittal estimated during Phase 1 and are seldom updated to reflect new decisions and requirements. The original requests for funding and the projected timelines are generally very optimistic and do not account for changing priorities of the workforce or field season adjustments.

On Site Review: The value of on site reviews as a means of communication cannot be over-emphasized. A full scale review with the project coordinator, ID Team, and appropriate line and staff following completion of the site development plan should assure that the project goals and objectives will be met. Omission of this review due to project delays, scheduling conflicts, restricted budgets, or failure to recognize the importance of the review is a concern.

Value Analysis: Value analysis provides a technical and resource review from outside the project team and District. This evaluation is more technical than the review that is recommended at the conceptual stage in Phase 2. The Value Analysis may provide better or more economical methods or products to achieve the desired results. The timing of the design stage VA is key to its effectiveness. The Gate System flow chart indicates an optional value analysis at the contract stage. However, if it is scheduled at the point where the contract package has been prepared, nearly all flexibility has been eliminated. The design team now has substantial ownership in the solution and much time and effort have been invested in the design, drawings and specifications. Adoption of VA recommendations, however cost-efficient, will result in costly redesign and delays. This problem could be avoided by scheduling the VA at the point where the site development plan is complete or nearly complete but before the contract package is prepared.

The site review and value analysis of projects are essential to obtaining the best products on the ground. These two facets of project management need to be incorporated into the design process as a matter of commitment.

Contract Package: The contract package is the end product and documentation of Phase 3. Some confusion exists about when final cost estimates are to be generated and what is meant by the term. The Gate System flow chart depicts the activity in two places, apparently with different emphases. The first final cost estimate is included as part of the Contract Package activity; the second is a separate activity located in the Interim period. Neither the graphic description of the Gate Process, nor the definiton of the expected activities is clear. If the final cost estimate is significantly increased over the estimate in Phase 2 - Gate 2, considerable delay in project implementation could occur. Currently, the standard for determination of a significant difference is 20 percent.

Plan-In-Hand Review: The plan-in-hand is the last field review prior to implementation of the project, and thus has added importance. It is also the last time to review the project's design for its capability to meet management objectives and resource concerns.

PHASE 4 - INTERIM

Phase 4 is the final cost estimate and is the last gate (Gate 3) prior to implementation or construction. The process as currently defined allows a year from finished design and cost estimate to construction. This time allows the Region to get a final Capital Investment Program balanced based upon cost estimates generated from final designs.

There is some confusion about when the final cost estimate is to be completed. This is partly a function of semantics, and partly a misunderstanding of the Gate System as it is currently described. The flow chart indicates that the final cost estimate activity is to be completed and the final construction costs submitted to the Regional Office by December 1 of the Interim year. Project personnel submit a request for construction costs using the technical definition of "final cost estimate" (the estimate made by the government for contract bid comparison). However, the Gate System defines the "final cost estimate" as the last cost update for programming and budgeting purposes. The field may not realize that the construction dollars will not be available for as much as another calendar year, and the RO may erroneously assume that the request has allowed for inflation and potential local bid conditions. The result too often is insufficient funds.

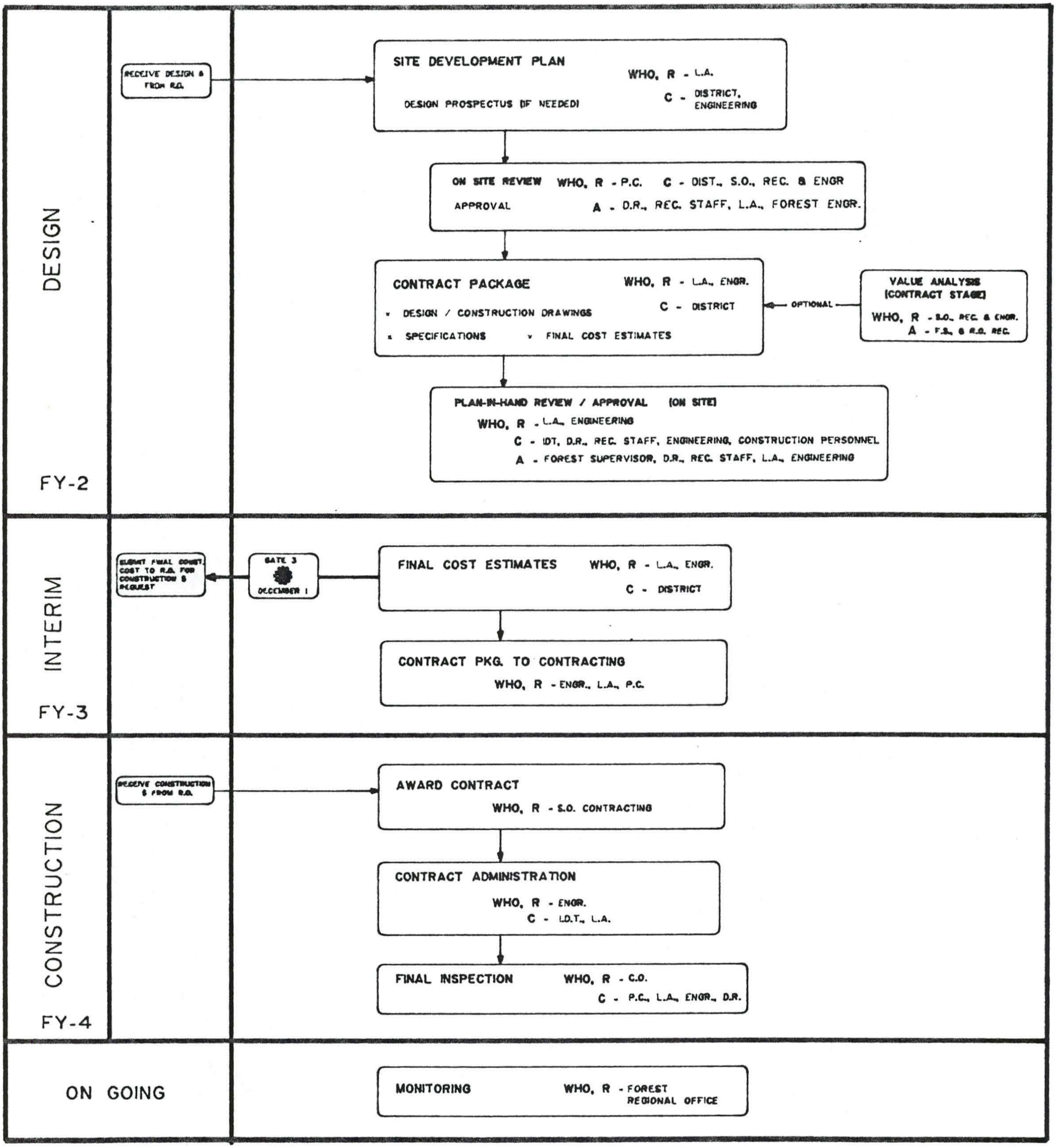

DESIGN
FY-2
RECEIVE DESIGN $ FROM R.O.
SITE DEVELOPMENT PLAN
DESIGN PROSPECTUS (IF NEEDED)
WHO, R - L.A.
C - DISTRICT, ENGINEERING
ON SITE REVIEW WHO, R - P.C. C - DIST., S.O., REC. & ENGR
APPROVAL A - D.R., REC. STAFF, L.A., FOREST ENGR.
CONTRACT PACKAGE WHO, R - L.A., ENGR.
C - DISTRICT
* DESIGN / CONSTRUCTION DRAWINGS
* SPECIFICATIONS * FINAL COST ESTIMATES
OPTIONAL
VALUE ANALYSIS (CONTRACT STAGE)
WHO, R - S.O., REC. & ENGR.
A - F.S. & R.O. REC.
PLAN-IN-HAND REVIEW / APPROVAL (ON SITE)
WHO, R - L.A., ENGINEERING
C - IDT, D.R., REC. STAFF, ENGINEERING, CONSTRUCTION PERSONNEL
A - FOREST SUPERVISOR, D.R., REC. STAFF, L.A., ENGINEERING
INTERIM
FY-3
SUBMIT FINAL CONST. COST TO R.O. FOR CONSTRUCTION $ REQUEST
GATE 3
DECEMBER 1
FINAL COST ESTIMATES WHO, R - L.A., ENGR.
C - DISTRICT
CONTRACT PKG. TO CONTRACTING
WHO, R - ENGR., L.A., P.C.
CONSTRUCTION
FY-4
RECEIVE CONSTRUCTION $ FROM R.O.
AWARD CONTRACT
WHO, R - S.O. CONTRACTING
CONTRACT ADMINISTRATION
WHO, R - ENGR.
C - I.D.T., L.A.
FINAL INSPECTION WHO, R - C.O.
C - P.C., L.A., ENGR., D.R.
ON GOING
MONITORING WHO, R - FOREST REGIONAL OFFICE

EXHIBIT 5
PHASES 3, 4 AND 5
DESIGN, INTERIM AND CONSTRUCTION

Initially, this interim period does not appear to be necessary. After reviewing historical estimated project costs from original to final, the difference is significant and requires the program to be adjusted annually.

The reasons for these significant differences can be traced back to the differences in the original project proposal and the actual requirements for the final project. Discussions of these differences may be found in the review of phases one through three. The main reason comes from insufficient determination of the project scope and definition.

A concern that is generated from this constant adjustment of projects is the credibility of the Forest Service with various user groups and Congress. It essentially amounts to trusting the organization to accomplish what it originally stated it intended to accomplish. Currently, there is a very low trust level of the Forest Service. This is evident not only in the Capital Investment Program, but in other major project areas such as deferred heavy maintenance.

PHASE 5 - CONSTRUCTION

It would be anticipated that this phase is the simple implementation of the design. However, this is not always the case. Several projects in Region 6 have experienced significant design changes. Most of these are changes resulting from differing site conditions, but several are due to design standards being changed, or because of insufficient planning or preconstruction efforts. This is a difficult management decision when the cost of possible changes is compared to the cost of preconstruction efforts to gather the required information. In several instances the project identification phase did not fully outline or detail what resulted in the final design.

Completion of this phase ends the development phase and starts the operation and maintenance phase. Operation and maintenance plans need to be written and site familiarization training with the proper personnel need to be conducted. A major asset to a successful project would be to have the operations and maintenance personnel a part of the planning and design efforts. This tends to be overlooked on most projects.

RECOMMENDATIONS

> It is best to do things systemmatically,
> since we are only human, and disorder is our
> worst enemy.
>
> Hesiod

RECOMMENDATIONS

Review of the Region 6 Recreation, Facilities, and Trail Development Process (Gate System) in comparison to industry accepted standards for project management demonstrates that the overall process is valid. The process or at least its principles were found to be well accepted by project development and management personnel. It is recommended that the process be retained essentially as it is structured.

The existing Gate System has ambiguities in several terms, work activities, and expected end products that need clarification. The following recommendations are intended to enhance or clarify work activities and more clearly define terminology. Some terms have been changed for greater specificity and clarity. The process phases and their basic purposes are retained as structured. An additional phase has been added to complete the life cycle of a project. To strengthen the process and improve project management, certain specified work activities are recommended to be completed with requirements to ensure that the work has been accomplished. These activities are considered critical for minimum project proposals.

PROCESS MODIFICATIONS

PHASE 1 - PROJECT CONCEPTION AND PRELIMINARY DEFINITION

(See Chart 1)

Description: The Project Conception and Preliminary Definition Phase consists of two basic tasks: 1) to form a project from an idea, and 2) to describe the essential qualities of the project. The purpose of this phase is to analyze the viability of a proposed project. The process is oriented toward inclusion in the Regional Capital Investment Program but does not preclude project implementation through other program funds.

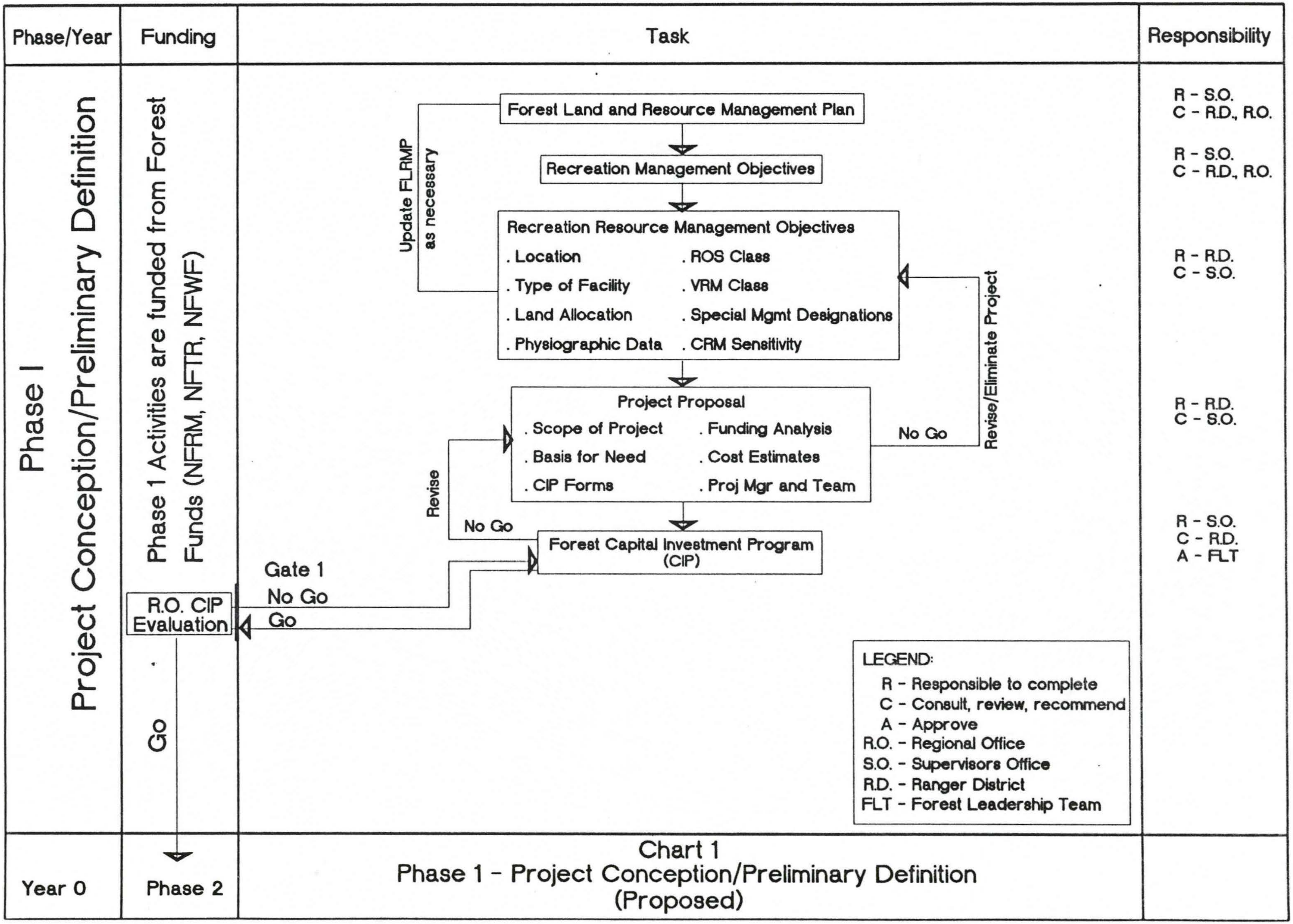
Goals and Objectives: The goals and objectives of this phase are to develop the initial project proposal, including project description, orientation, scope, determination of project need, and management guidelines.

Work Activities: Initial planning is based on the approved Forest Land Management Plan. Basis for need (including any required market analysis), funding analysis, determination of project scope, initial inventory of land allocations, Recreation Opportunity Spectrum classes and Visual Resource Management classes, initial cost estimates, documentation of decisions and management guidelines, and development of a Forest Capital Investment Program are accomplished.

End Products: The products to be produced during this phase include documentation of Recreation Resource Management Objectives, an analysis or summary of funding strategies, a project proposal, and a Forest Capital Investment Program listing project priorities.

Responsibility: Project proposals, with the associated work activities and end products are the responsibility of the District. The Forest Capital Investment Program is developed by the Staff Officer and appropriate Forest personnel. Regional Office specialists and Master Performers are available upon request to assist in the various tasks of project conception and preliminary definition.

Funding: Work activities associated with project conception and preliminary definition are the responsibility of the District and Forest through the recurrent program management or operations and maintenance allocations. Capital investment appropriations are not available for preliminary project planning nor do allocations for recreation programs include support for associated resource activities such as wildlife or soils input or review.



Phase/Year
Funding
Task
Responsibility
Phase I
Project Conception/Preliminary Definition
Phase 1 Activities are funded from Forest Funds (NFRM, NFTR, NFWF)
Forest Land and Resource Management Plan
Update FLRMP as necessary
Recreation Management Objectives
Recreation Resource Management Objectives
. Location
. Type of Facility
. Land Allocation
. Physiographic Data
. ROS Class
. VRM Class
. Special Mgmt Designations
. CRM Sensitivity
Project Proposal
. Scope of Project
. Basis for Need
. CIP Forms
. Funding Analysis
. Cost Estimates
. Proj Mgr and Team
No Go
Revise/Eliminate Project
Revise
No Go
Forest Capital Investment Program (CIP)
Gate 1
No Go
Go
R.O. CIP Evaluation
Go
Year 0
Phase 2
R - S.O.
C - R.D., R.O.
R - S.O.
C - R.D., R.O.
R - R.D.
C - S.O.
R - R.D.
C - S.O.
R - S.O.
C - R.D.
A - FLT
LEGEND:
R - Responsible to complete
C - Consult, review, recommend
A - Approve
R.O. - Regional Office
S.O. - Supervisors Office
R.D. - Ranger District
FLT - Forest Leadership Team

Chart 1
Phase 1 - Project Conception/Preliminary Definition
(Proposed)

Definitions:

Recreation Program Objectives - the overall objectives of the Recreation Program as outlined in the Forest Land and Resource Management Plan. These objectives give direction for the types of facility development and recreation opportunities that are needed.

Recreation Resource Management Objectives (RRMO) - the specific management direction for an individual facility. Types of facilities include developed and dispersed sites, trailheads, interpretive sites, snow parks, water recreation oriented sites, and visitor centers or any other activity center associated with recreation. The data required include location, facility type, Recreation Opportunity Spectrum and Visual Resource Management classes, land allocations, special area designations, physiographic characteristics, and cultural resource or historical sensitivity (estimated or inventoried). Data should also include any associated activity that would influence the management or development of an activity or site. RRMO's consist of three sections: 1) Site Description, 2) Design Requirements, and 3) Operational Requirements.

Basis for Need - describes why the project is necessary. The Basis for Need is essentially a justification statement. Projects are justified on one or more of the following bases: 1) Environmental concerns (physical), 2) Operational Issues (management), 3) Market Analysis (social). A project is needed to correct environmental problems or operational inefficiencies, and/or to expand or change socially dictated services.

Environmental concerns include water and sanitation, erosion (sedimentation), or impacts on wildlife or other resources caused by prior development. Operational problems include administrative (staffing) or maintenance costs, facility backlog, or capability to meet different site onjectives. Safety conditions are a function of facility operations. Market analysis includes assessment of the social needs of development including users, desired experience, settings, activities, and facilities, capacity, and public expectations.

Scope of Project - defines or describes what the proposed project objectives are. Scope characterizes the type of project and the extent of work activity to be accomplished. It delineates the parameters of the project.

Funding Analysis - a determination of funding opportunities to implement the project. The funding analysis includes partnerships, companion projects, and special emphasis programs.

The importance of the Project Conception/Preliminary Project Definition phase cannot be overemphasized. The approved proposal has impacts not only on the District but also initiates expectations of workforce requirements, users of the National Forests, program managers, and Forest and Regional Management. Correcting misconceptions, ill defined proposals, and optimistic estimates of needs will be difficult for several reasons: 1) required specialist skills may not be available to assist in a timely manner, 2) fund allocations may not be available, 3) credibility with special interest groups and others will be compromised, 4) opportunities to engage partners or companion projects may be foregone, and 5) additional project work at a later time may be required that could impact resource management unnecessarily.

EMPHASIS AREAS:

1) *Recommend Interdisciplinary Approach*. A full interdisciplinary approach to project proposals along with some familiarity with other resource project funding requirements would provide more complete projects. Area planning, similar to Integrated Resource Analysis, suggests an avenue for better integrated, interdisciplinary project development, including improved project descriptions and estimation of environmental impacts and mitigation measures.

2) *Require Market Analysis.* A market analysis is required for all projects that propose new facilities, expansion of current facilities, or changes in standards of existing facilities. The principal reason for a market analysis is to ensure that the project objectives will meet the needs of the user. A market analysis consists of two parts: a social needs assessment, and a program evaluation of existing site operation. The social needs assessments identifies the desires, preferences, and priorities for services of various markets. This assessment assists in identifying needs, opportunities, and threats that provide the basis for setting project management objectives. Management may choose to target markets rather than expect to meet all needs identified by market studies. This is a proper function of resource allocation.

3) *Require Business Plan.* A business plan is required for all projects that propose additional capacity, including new facilities and expansion of current facilities. Funding trends indicate that operation and maintenance dollars will not increase substantially in proportion to spending power above current levels. The business plan shall describe how the unit will operate and maintain the proposed project to the standard constructed. Alternatives may include removal of equivalent capacity at other locations within the unit. Analysis of the economics and financial impacts of a project proposal is necessary to determine project viability. It is a difficult analysis to do, not because of technique but because there is no common agreement on acceptable procedures and economic values. A narrative description is required, as a minimum, describing the anticipated economic and financial impacts of a proposed project. Issues that should be addressed are alternative cost estimates, operating costs, user costs, maintenance costs.

4) *Document Recreation Resource Management Objectives.* Establishment and documentation of Recreation Resource Management Objectives are essential to provide direction for project work, management and operational guidelines, and to establish a data base for the Recreation Resource Inventory System. Approval of the RRMO's will be required prior to funding of projects with Capital Investment Program allocations.

Developing and managing a resource project, such as a campground, requires a complex interdisciplinary interaction. Managers responsible for the resource need the services of landscape architects, archaeologists, botanists, engineers, information and interpretive specialists, and many others. Focusing the resource and technical requirements of each discipline on the project demands a common understanding and documented objectives.

There is also a need to have inventories and a data base of the various recreation facilities, including information on type, size, use, access, area attractions, and other technical data. This information is needed by program managers, public information specialists, and line and staff officers, for budgeting, attainment, and general information as well as for project development.

The Recreation Resource Inventory System (RRIS) currently being formulated cooperatively by several Regions provides the majority of information needed. The data base is designed to contain basic information needed by recreation program managers and public information offices. It does not contain the information needed by technical specialists to design facilities.

Recreation Resource Management Objectives, as proposed, would include the information required by RRIS, but would also contain management objectives and the basic technical data for facility design and operations. The additional data would be that information affecting the planning, design, construction, or operation of a recreation facility. Review by technical staff and approval by a line officer would be mandatory with completion prior to any new construction, expansion, or major investment.

There are several available methods to document the RRMO's. Each unit (Forest or Region) should customize the documentation and format to their particular needs. It is recommended that a Regional format be used to facilitate information exchange between units. A dictionary of terms should be agreed upon to reduce confusion and misconception of expectations.

Four iterations of the objectives may be necessary in application. These revisions would result from the work activities of the major phases or gates in the development of a facility: Project Conception, Planning, Design, and Operation (due to construction modifications). Each revision should be a refinement of the previous unless a very serious objective modification is encountered. The revisions would coincide with the Resource Development Process (Gate System).

In addition to documenting the management objectives and inventory information, RRMO's would also provide the basis for, or could be used as the design narrative. Errors or misconceptions regarding facility objectives and requirements would be greatly reduced as the information would be common to all facets of project development and operations.

The following is a conceptual outline of Recreation Resource Management Objectives:

(Note: Not all of the data required are easily converted to a data base. However, all the information necessary for RRIS should be incorporated.)

I. Inventory Data/Location

  A. Database Requirements (Inventory Numbers)

  B. Location
    1. Physical Location
    2. Administrative Location

II. Type of Facility/Activity

  A. Facility Classification (Developed, Dispersed, VC)

  B. Activity Classification (Camping, Water Play, Winter Sports)

III. Physiographic Data/Vegetation

  A. Topographic/Aspect

  B. Weather/Climatic Conditions

  C. Soils/Geology

  D. Vegetation Types/Cover

IV. Management Objectives

  A. ROS Classification/Development Scale

  B. Land Allocation (From FLRMP)

  C. VQO Objective

  D. Accessibility Strategy

V. Environmental and Resource Concerns

  A. Cultural Resources

B. Threatened and Endangered Species

C. Water Quality

D. Other

VI. Access/Service Areas (Transportation Systems)

A. Routes Accessing the Facility

B. Population Centers Served

VII. Use Data

A. Types of Uses

B. Existing Use

C. Projected Use

D. Season(s) of Use

E. Market Analysis

VIII. Site Criteria (Design Criteria, Elements, Standards)

A. Transportation Systems
  1. Roads
  2. Trails
  3. Waterborne

B. Facilities
  1. Buildings
  2. Campground
  3. Information Center
  4. Waterborne

C. Utilities
  1. Water
  2. Waste
    a. Human
    b. Solid
  3. Electricity

IX. Operations/Maintenance

A. Facility Maintenance

B. Vegetation Management
C. Transportation Systems
D. Health & Safety Issues

This outline proposes minimum information requirements. The format and level of detail need to be adjusted to fit the requirements of the program and the facility. It is important that the information is documented and approved at the proper levels.

5) *Recommend Criteria For Forest CIP Program Development.* The final step for Phase 1 is the development of a Forest Capital Investment Program. Several methods are available to analyze the proposals to determine project priority. The Region periodically issues a request for project proposals and submission of project cost updates. This letter usually details evaluation criteria to be used for the Regional Capital Investment Program. However, this letter is issued with very little lead time to allow the effort proposed above to be implemented with sufficient consideration and analysis. It is recommended that the following evaluation criteria be used as a guide to develop Forest Capital Investment Programs:

(1) Environmental/Resource Impacts
(2) Health and Safety Issues
(3) Regulatory or Legal Requirements
(4) Economic or Budgetary Impacts
(5) Visitor Satisfaction
(6) Political or Program Emphasis Issues
(7) Level of Use

Completion of the above and approval by the Forest Supervisor will meet the requirements of Gate 1 of the project development process.

PHASE 2 - PLANNING OF THE PROJECT

(See Chart 2)

Description: The planning phase of the project is a detailed refinement of project conception and preliminary definition. It is most significant in that it provides the final project direction and detailed project definition and scope. The information and analyses will be the direct input to the design phase. The NEPA process provides the framework for planning. Project planning includes the following steps: 1) Review and refine project definition as data are collected and analyzed; 2) Establish final project expectations; 3) Determine costs, workforce and time required; 4) Identify risk and uncertainty areas; 5) Determine technical, environmental and economic feasibility; 6) Analyze alternative systems to accomplish project goals and objectives; 7) Determine jurisdictional, political, or social requirements and impacts; 8) Document and communicate project guidelines for design and construction, and operational criteria, elements and standards.

Goals and Objectives: The goals and objectives of the planning phase are to provide design criteria (design narrative), anticipated environmental impacts, engineering feasibility report, finalize management direction (including the Recreation Resource Management Objectives), and update cost estimates.

Work Activities: Analysis of environmental impacts as required by the National Environmental Policy Act, analysis of engineering feasibility and conceptual designs, finalize design narrative, economic or financial analysis, update and document RRMO's, site surveys, and as an option have Value Analysis performed on the project.

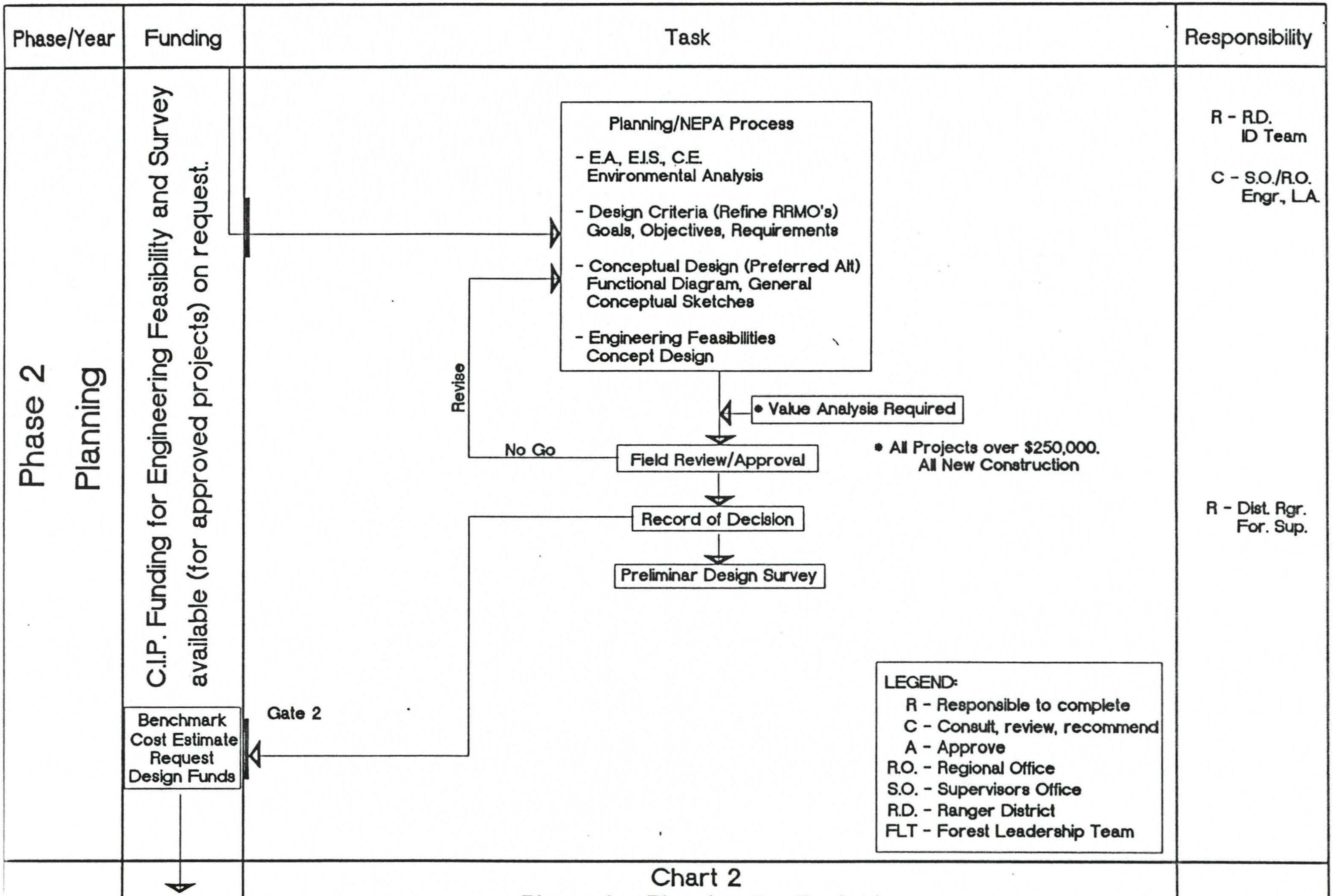

Phase/Year
Funding
Task
Responsibility
Phase 2
Planning
C.I.P. Funding for Engineering Feasibility and Survey available (for approved projects) on request.
Planning/NEPA Process
- E.A., E.I.S., C.E. Environmental Analysis
- Design Criteria (Refine RRMO's) Goals, Objectives, Requirements
- Conceptual Design (Preferred Alt) Functional Diagram, General Conceptual Sketches
- Engineering Feasibilities Concept Design
R - R.D. ID Team
C - S.O./R.O. Engr., L.A.
Revise
• Value Analysis Required
No Go
Field Review/Approval
• All Projects over $250,000. All New Construction
Record of Decision
R - Dist. Rgr. For. Sup.
Preliminar Design Survey
Gate 2
Benchmark Cost Estimate Request Design Funds
LEGEND:
R - Responsible to complete
C - Consult, review, recommend
A - Approve
R.O. - Regional Office
S.O. - Supervisors Office
R.D. - Ranger District
FLT - Forest Leadership Team
Year 1
Phase 3

Chart 2
Phase 2 - Planning the Project
(Proposed)

PHASE 4 - IMPLEMENTATION OF THE PLAN (CONSTRUCTION)

(See Chart 4)

Description: The implementation of the design package on the project site.

Goals and Objectives: Construction of the approved design.

Work Activities: Award of contract, contract administration, and final inspection.

End Products: The physical and operational modification of the site to meet management goals and objectives.

Responsibility: Implementation of the contract package is the responsibility of the District and the Forest through certified contract administrators.

Funding: The Construction Phase is funded through the Capital Investment Program. Cost estimates for construction should include costs of contract administration and contract modification.

Definitions:

> *Contract Award* - the signing of the contract by the successful bidder and acceptance by the Forest Service.
>
> *Contract Administration* - the enforcement of the contract requirements by the Forest Service representatives.
>
> *Final Inspection* - acceptance of the project for use by the Forest Service. Acceptance for use by the Forest Service completes the project development phase.

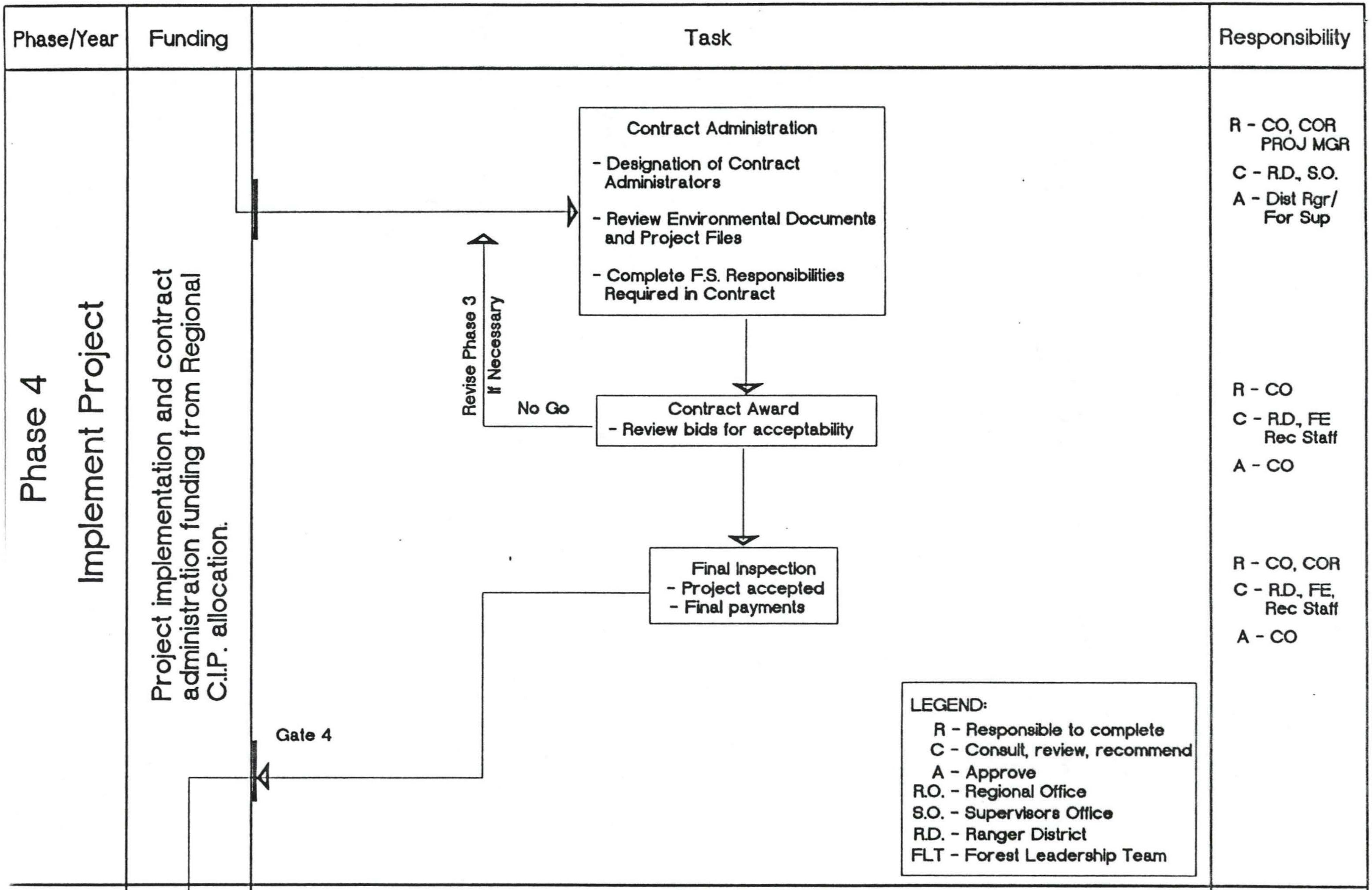

Phase/Year
Funding
Task
Responsibility
Phase 4
Implement Project
Project implementation and contract administration funding from Regional C.I.P. allocation.
Contract Administration
- Designation of Contract Administrators
- Review Environmental Documents and Project Files
- Complete F.S. Responsibilities Required in Contract
R - CO, COR PROJ MGR
C - R.D., S.O.
A - Dist Rgr/ For Sup
Revise Phase 3 If Necessary
No Go
Contract Award
- Review bids for acceptability
R - CO
C - R.D., FE Rec Staff
A - CO
Final Inspection
- Project accepted
- Final payments
R - CO, COR
C - R.D., FE, Rec Staff
A - CO
Gate 4
LEGEND:
R - Responsible to complete
C - Consult, review, recommend
A - Approve
R.O. - Regional Office
S.O. - Supervisors Office
R.D. - Ranger District
FLT - Forest Leadership Team
Year 3
Phase 5

Chart 4
Phase 4 - Implement Project
(Proposed)

PHASE 5 - MAINTENANCE, MONITORING, AND EVALUATION (OPERATIONS) OF THE PROJECT

(See Chart 5)

Description: The project has been accepted for use and is considered operational. Maintenance is critical to operating the facility for the intended objectives. Monitoring and evaluation are methods to gather data and evaluate the project goals and objectives.

Goals and Objectives: The goals and objectives for this phase are operating and maintaining the facility as planned and then measuring those plans for their effectiveness.

Work Activities: Site or facility maintenance, use monitoring, evaluation of operations.

End Products: Operation and Maintenance Plan (including a Vegetation Management Plan), Monitoring and Evaluation Plan (could be part of an overall District Management Plan for Recreation Sites).

Responsibility: District Ranger

Funding: District Operations and Maintenance allocations.

Definitions:

> *Maintenance* - those activities associated with supporting and sustaining the management goals and objectives.
>
> *Monitoring* - reviewing and documenting the activities including the maintenance associated with the site.
>
> *Evaluation* - the analysis of the monitoring data as to the effectiveness of the goals and objectives in meeting the needs of the users.

EMPHASIS AREAS

1) *Emphasize Project Monitoring and Evaluation.* The Maintenance, Monitoring, and Evaluation Phase is added to the Gate Process to include the life cycle of a project. The monitoring and evaluation activities provide useful information for budgeting, market analysis for this and other similar sites, customer satisfaction, and an evaluation of the management goals and objectives. It is critical in that it is the interface between the user and the Forest Service, and how the Forest Service is managing the public facilities. At present, these activities are often overlooked or carried out haphazardly. There are several reasons. Project development and project operation are performed by different people, and there is little interaction or communication between the two groups. When the project is accepted for use, the involvement of the project development team ends. Operation and maintenance funding is more limited than construction funding, and is forced to stretch farther. Too often the site is managed in a manner that was not planned causing the site to operate at something less than what was intended. This factor is one of the main considerations that should be evaluated before adding capacity to the District program.

Phase/Year	Funding	Task	Responsibility
Phase 5 Maintain, Monitor, and Evaluate the Project	Funding for Project Operation From Recreation Management Allocation	Operations and Maintenance Plan - Detailed decription and instructions for facility operation requirements	R - CO, COR PROJ MGR C - R.D., S.O. A - Dist Rgr/ For Sup
		Monitor and Evaluate - Facility operations	R - CO C - R.D., FE Rec Staff A - CO
Year 5		Chart 5 Maintain, Monitor, and Evaluate the Project (Proposed)	

IMPLEMENTATION

Order marches with weighty and measured strides;
disorder is always in a hurry.

Napoleon Bonaparte

IMPLEMENTATION

TRAINING

Modification of the "Gate System" will resolve all of the current issues and concerns with the decision process. Training is also needed to obtain or enhance basic skills in project development.

Four specific areas are particularly weak throughout the Region: Project Mangement, Economic Analysis (including life cycle costs), Funding analysis, and Market Analysis.

Project management skill development is available from various seminars throught the Region. These seminars are very generic in nature and may be difficult for the inexperienced project manager or team member to relate to Forest Service activities. Development of a course specifically for the Forest Service using resource projects would provide the optimum familiarity and examples. This would allow project personnel to better relate the training to actual field conditions and situations.

Economic analysis techniques are an essential element of various professional disciplines. Maintenance of these skills is weak. Technicians may have received exposure to economic analysis but are not generally trained. Project development concentrates on life cycle costing much like that used in value analysis. Limited training is available through seminars and formal education. A course or training session needs to be developed that addresses the specifics of Forest Service resource projects.

Funding analysis is acquired by on-the-job training. It is generally a hit or miss experience and does not address all of the various and unique funding opportunities for resource project development. Training in the funding of Forest Service projects needs to be developed and implemented by Forest Service personnel. This course would review the various options and requirements of funding available to finance resource projects.

Market analysis skills may be developed through various reading materials and some limited formal education. Training sessions and seminars do not appear to readily available sources of skill development. The Region 3 guide does provide some direction and guidance and for small projects would do well. A course needs to be created that more specifically addresses marketing analysis of Federal government resource development projects.

All of these training components could be combined into an intensive short course that would provide familiarization with the subject matter. On-the-job training would then be used to further enhance those skills. A training course could also be developed using the modular concept or university style of training that would provide more depth and detail, including examples and case studies.

DEVELOPMENT OF GUIDES

Field guides should be developed that would provide project development managers, line officers, and team members a quick reference to project development, project management, and design. These guides would be oriented toward Forest Service projects and procedures. Regions 3 and 5 have developed materials that are extremely useful models. Region 3 has written a very good project development guide, focused on their process, that could provide the basis for a comparable guide for project development in the Pacific Northwest Region. Region 5 has written a design guide that could be adapted for use in Region 6 and updated to reflect the most recent requirements for accessibility, historic preservation and ROS application.

MANAGEMENT OBJECTIVES SYSTEM

A system not unlike the documentation of Road Management Objectives would be very useful for management of recreation projects. It would serve as the basis for planning, survey, management objectives, design and operations. It could also be designed to include the Recreation Resource Information System as an integral part of the documentation.

CONCLUSION

The means prepare the end, and the end is what
the means have made it.

John Morley

CONCLUSION

Process Summary:

The Region 6 Recreation, Facilities, and Trails Development Process was developed to provide improved integration of project planning, design, and construction with program emphasis and funding. The Gate System was intended to provide a simplified, uniform and flexible methodology, with budget and workforce requirements, for project development. Project management processes are inferred but not directly addressed.

The objectives of this project are threefold. The first is an analysis of the current recreation project development process, to identify weaknesses in the Gate System and procedures and terminology that are unclear, poorly defined, or confusing. The second objective is to suggest ways to strengthen the system, add definitions or clarification where necessary, and recommend refinements or revisions for overall improvement. The third objective is to provide explicit project management guidelines for the development process.

A project management process, based on industry standards, was used to guide the review. This decision process composed five phases: 1) project conception - preliminary definition, 2) project planning, 3) project design, 4) design implementation, and 5) project maintenance, monitoring, and evaluation.

Results:

Informal interviews and discussions with project development personnel, program managers, and line officers indicate that the process provides good direction for the development and implementation of recreation projects. This assessment is verified when comparing it to processes developed in other Regions and through research of decision making processes and project management techniques.

Suggested revisions to the Gate process should enhance or clarify work activities and more clearly define terminology. Some terms have been changed for greater specificity and clarity. The process phases and their basic purposes are retained as structured. An additional phase has been attached to complete the life cycle of a project. To strengthen the process and improve project management, certain specified work activities are recommended to be completed with requirements to ensure that the work has been accomplished. These activities are considered critical for minimum project proposals.

Adoption of Recreation Resource Management Objectives (RRMO's) is suggested for documentation of decisions, design criteria, elements, and standards, as well as other operational guidelines. This would be compatible with current guidance for the Recreation Resource Information System (RRIS).

The process is applicable to all types of resource development projects including recreation facilities, trails, roads, buildings, and watchable wildlife. This conclusion is supported by the review of other Region's processes. Region 1 uses the same process for watchable wildlife that is required for for trails and recreation faclities. Region 3 duplicates the process for Fire, Administrative, and Other facilities that is used for recreation development.

Resource project development, regardless of functional area, would benefit from having a single process. Uniformity, or at least consistency, is particularly critical when the projects are companion or partnerships. A reduction in confusion and communication breakdowns would be achieved by a common process for all non-timber related activities.

Recommendations:

The Region 6 Recreation, Facilities, and Trails Development Process is a system of proven value. It has wide utility and application as a decision process. The Gate System is recommended for use as the basis for resource project development. It is recommended that the revised Gate System be adopted at the Regional Level in the Pacific Northwest Region. Implementation of the revised process Region-wide will be facilitated by the development of training and field guides.

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In anything at all, perfection is finally attained
not when there is no longer anything to add, but
when there is no longer anything to take away.

Saint-Exupery

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APPENDIX

Could everything be done twice everything would be done better.

German Proverb

United States
Department of
Agriculture

Forest
Service

RO

Reply to: 2300
7100

Date: JULY 17 1989

Subject: Capital Investment Project Gate Process

To: Forest Supervisors

At last November's Recreation and Engineering Manager's meeting, the decision was made to develop a "Gate" system for Recreation project planning and design. The intent was to develop a system similar to that used in timber sale planning, which would ensure adequate planning and design processes are established and followed in project development. During the time of developing the process it was decided to expand the use to include trails and FA&O projects.

We are enclosing the package that contains the developed process you are to follow. All steps listed before each gate are to be completed before moving to the next gate. The first projects to follow this process will be those for FY '93 construction which you will be submitting in March of 1990. All steps of "project identification" through Gate 1 are to be completed at that time. A process check list has been developed for your use in planning and tracking project development. In addition, a guide book is planned to be developed for future use.

You should ensure that Forest personnel involved in project planning and development are aware of and implement the process as allocation of funds will be triggered by the Gates. A separate copy of this package is being sent to each Forest Engineer and Recreation Staff for their assistance in implementing on your Forest.

for Richard A. Ferraro
JAMES F. TORRENCE
Regional Forester

Enclosures

cc:
E - D.Vineyard

RECREATION, FACILITY AND TRAILS DEVELOPMENT PROCESS (GATE SYSTEM)

Definition Of Terms

PROJECT IDENTIFICATION PHASE

All work performed under the Project Identification Phase is funded through regular forest funds, not C.I.P. funds.

DESIGN AND DEVELOPMENT STRATEGY

This step provides management direction for a particular area and may be defined by geographic setting, interconnected use areas, land use allocations, etc. It conveys the potential use of an area while recognizing site constraints and other area plans. It may include such products as an area map, inventory and analysis, objectives, direction and guidelines, graphic diagrams, and a marketing study, if needed. It is a direct response to the forest plan (in the case of recreation this includes the R.O.S. classes). This work is initiated by forest and district planners.

PROJECT DESCRIPTION

A project description identifies the needs of a specific project, summarizes why the project needs to be done, identifies the physical boundaries of the project, describes what resources will be affected, may identify interpretation needs and objectives, and provides a general timeline. The district is generally responsible for writing the project description and for identifying the Project Coordinator and ID Team.

FOREST DEVELOPMENT OF PROJECT PROPOSALS

Capital investment proposals identify projects in need of funding for development. These proposals are submitted to the regional office annually. Each forest receives a list of potential projects from each district. Prior to submitting the final list to the R.O., the supervisor's office and districts consolidate, evaluate, and designate forest priorities. The Regional Office will let each forest know tentatively funded projects by July. In October the final list of projects is verified.

GATES

A gate is an indication that a critical point/decision has been made. The decision is based on the culmination and completion of all the steps listed in the process before the Gate. Each Gate is tied to a due date and if the process scheduling of the project doesn't allow the due date to be met, it will delay the project.

GATE 1

The Line Officer has made a decision on projects to submit for CI funding. All previous steps have been completed. The capital investment proposals are submitted to the R.O. for consideration annually, in March or April. Should the project be selected for the Regional Program, funding for feasibility and survey will be allocated.

FEASIBILITY AND SURVEY PHASE

N.E.P.A. PROCESS

The N.E.P.A. process should include a design narrative/preliminary project analysis with conceptual designs, an engineering report, and appropriate documentation ie. EA, CE, EIS. A signed Record of Decision is the final product.

A site survey may be necessary in order to conduct the analysis. If one is not available, it may be done during the NEPA process, depending on need and scope of the project. A tagline or current available information may be enough to serve for the EA.

SITE SURVEY

A site survey is a detailed map of the physical features of the site and is used for site analysis and planning, design, and construction plans. The surveyor shall consult with the forest landscape architect, the forest or district engineer, and any additional specialists prior to survey work for site information, boundaries and requirements.

If there is any survey information available, it can be used during the NEPA analysis and a more detailed site survey done after the Record of Decision. If there is not enough available survey information, the site survey must be done as part of the NEPA process.

DESIGN NARRATIVE/PRELIMINARY PROJECT ANALYSIS

The design narrative provides a statement of the project program, site inventory and analysis, and design criteria or evaluation criteria. It includes an inventory and analysis of existing physical conditions, past and present use of the site, the proposed programmed use of the site, management direction, specialist input, alternatives to be considered, and a preferred alternative.

If the NEPA documentation is an EA, the design narrative could be included in the EA since they utilize similar information and analysis.

CONCEPTUAL DESIGNS

Conceptual designs are a graphic portrayal of alternatives within the design narrative and/or E.A, and are included in the design narrative. They may illustrate patterns of activity, circulation, visual form, ground treatment, the major plant materials and any additional features which will

affect the outdoor space. Concepts may be expressed in plan view, sections, "bubble diagrams", perspectives, isometric views, or in model form. These concepts provide a preliminary design which will help generate the final site development plan, (see Site Development Plan.)

ENGINEERING REPORT/ALTERNATIVE ANALYSIS

An engineering report/alternative analysis is a written report which analyzes the engineering aspects of the alternatives. Some examples are water and sanitation requirements of the site, surface and subsurface analysis, trail hardening and blasting, trailbridges, maintenance expectations, etc. This report should be used as one tool to evaluate the alternatives identified in the design narrative/preliminary project analysis, prior to choosing a preferred.

VALUE ANALYSIS (CONCEPTUAL STAGE)

A value analysis is an evaluation by an off-forest group made up of several specialists of varied backgrounds. The group is assembled to evaluate the appropriateness of the design alternatives, the economic feasibility of each and make recommendations to the forest. A VA at this time would focus on the scope of the project, alternatives considered and conceptual designs of each alternative.

ON SITE REVIEW / APPROVAL

An on site review/approval is a presentation of the selected alternative and is conducted by the I.D. team. The review occurs at the site, whenever possible, and covers the aspects of the selected alternative with clear direction for the final design. Approval is made by the District Ranger and selected members of the Forest management team. A record of decision on a NEPA document is then made by the Line Officer.

GATE 2

The capital investment forms are submitted to the R.O. for design funding during March/April. Forms should include an updated cost estimate, developed from the selected alternative of the conceptual design(s).

DESIGN PHASE

SITE DEVELOPMENT PLAN

The site development plan (general development plan) is a final plan generated from the conceptual design(s) of the selected alternative, showing all phases of construction for the site. This plan must be reviewed and approved by Line and Staff. Minimum level of approval is the Forest Supervisor.

DESIGN PROSPECTUS

A design prospectus provides more detailed information about the site development plan. This is used to assist the designer or private design firm with specific design criteria and guidelines. It provides a written description of the site improvements, buildings, trails, types of materials to be used, specification items, colors of structures, etc.

ON SITE REVIEW

An on site review shall occur before construction drawings and specifications are started and when rough drawings and details are available. This review may be held in the office and/or field; whichever is most applicable. This allows for any minor changes or additions before final construction plans are completed.

CONTRACT PACKAGE

The contract package is construction plans and specifications prepared for construction purposes. It consists of all appropriate plans (architectural plan, site layout plan, grading plan, utility plan, irrigation plan, planting plan,etc.), details, specifications, and the final cost estimate.

VALUE ANALYSIS (CONTRACT PACKAGE STAGE)

A value analysis at this stage of the process would focus on the final plans, specifications, and cost estimate. The objective would be to realize any cost savings in the project while staying within the guidelines of the NEPA process decisions.

PLAN IN HAND REVIEW

A plan in hand review is a review of construction plans, in the field, with all required district personnel, specialists, COR's and inspectors, and line and staff officers. Once reviewed, finalized, and approved documents may be sent to contracting. Intermittent reviews may be necessary in working out all details.

INTERIM PHASE

INTERIM YEAR
(Recreation and F.A.&O. projects only)

The intent of the interim year is to allow for accurate cost estimates to be submitted to the R.O. for the construction phase of the CI project. Currently, submittal for construction dollars is due in December of the design year, which doesn't allow enough time to complete construction documents and the final cost estimate. By adding the interim year, submittal for construction dollars will occur after the final cost estimate is done (after the design year is completed).

FINAL COST ESTIMATES AND GATE 3

The unit has finalized the project and all contract documents are complete and ready for bid. Final cost estimates include an estimate of all materials and labor necessary to construct the project, salary costs for contract administration (including project coordinator), other costs associated with the contract, and an inflation factor. The cost estimate is completed by the forest engineers and landscape architects. It is submitted by the appropriate forest staff to the Regional Office, by December 1. This amount becomes fixed at this point.

CONTRACT PACKAGE TO CONTRACTING

A contract package is sent to contracting and includes a full set of plans, specifications, and a cost estimate. 120 days prior to desired award date should be allowed to give contracting adequate time to advertise the contract.

The contract documents are discussed with the C.O., C.O.R., and inspectors by the ID team.

CONSTRUCTION PHASE

CONTRACT ADMINISTRATION

Contract administration is provided by the C.O.R. The C.O.R. and Inspectors shall coordinate with the project coordinator and other specialists regularly to insure quality control and proper construction is executed. Contract modifications (change orders) should be reviewed and discussed with the project designer prior to approval.

FINAL INSPECTION

Final inspection is required. The objective is to see that final constuction is in substantial compliance with the contract documents. As built drawings should be completed after final inspection.

MONITORING

Monitoring is a continuing process to evaluate if the project is operating in a way that meets the purpose and needs for which it was designed. Among other things, it will include documentation and feedback to the designers.

End Products: End products expected of this phase are a Record of Decision resulting from the NEPA Process, a final design narrative including conceptual design, engineering feasibility report, final RRMO's, economic or financial analysis, and an updated cost estimate.

Responsibility: Initiation and completion of the work activities in this phase are the responsibility of the District and the Forest. Consultants are available in the various technical aspects from the Regional Office, Master Performers program, and from private industry.

Funding: Projects that have been accepted for inclusion in the Regional Capital Investment Program are funded through Capital Investment appropriations from the Regional Office. In this phase, these funds are solely for the technical planning efforts including feasibility and survey. The NEPA process is a general planning function and is funded through recurrent program management funds. Resource specialists that are necessary for analyzing the environmental impacts or other issues are funded through the required resource program. For example, wildlife specialists are to be funded through wildlife program allocations.

Definitions:

NEPA - the associated documents, activities, and analysis required by the National Environmental Policy act.

Design Narrative - the document that defines or describes the design criteria of the physical and environmental setting required for the project to meet the Recreation Resource Management Objectives.

Conceptual Design - illustrates how activity and support systems (such as roads) fit with the site. It is essentially a functional analysis of the management objectives with physical and environmental features of the site. It may include sketches of architectural concepts or ideas.

Engineering Feasibility Report - a document that displays an analysis and evaluation of the technical support activities related to the site development. These technical support features may include roads, water systems, and sanitation requirements.

Record of Decision - the document that displays the preferred alternative as the result of an environmental and technical analysis. It is the official decision document.

Site Survey - a map of the project area that includes all physical and topographic features. It is used to develop the design of the proposed project.

The purpose of this phase is to perform detailed analysis of alternatives that meet the management requirements established in phase 1. The quality of the results of this phase will guide the quality of the remainder of the project development. Good projects may be salvaged from poor planning efforts, but generally at additional costs and delays to design and construction.

EMPHASIS AREAS

1) *Emphasize NEPA Process.* Two elements of the Project Planning Phase, completion of the NEPA process and the design narrative are critical to project progress. The NEPA requirements are specified in the Act and accompanying policy and regulations. It is important to note that the NEPA process is appropriately funded from recurrent resource program management allocations.

2) *Focus on Design Narrative.* Design narratives are to provide the project team, and particularly the designers with the minimum direction necessary to meet the project management objectives. Design narratives should contain the following information:

(1) Statement of the project goals and objectives.

(2) Site inventory and analysis.

(3) Design criteria.

(4) Environmental constraints.

(5) Past and present use of site.

Most of this information is already compiled either in the Recreation Resource Management Objectives or in the documentation for the environmental analysis. The design narrative concentrates this information, defines or describes the design criteria for the desired physical, social, and managerial settings of individual recreation sites, and provides the written management direction for the physical and environmental requirements to be used by landscape architects, architects, and engineers in project development.

Use of the proposed RRMO's provides design narrative information to include: 1) Documentation of decisions, 2) Database input for the Recreation Resource Information System (RRIS), 3) Checklist of routine site requirements, and 4) a common method of communicating information.

The design narrative has to be specific enough to detail the criteria for what the project planners desire or intend but general enough to allow the designers to be creative. Designers must then determine the elements and standards to be used. Agreement between management and the designers must be reached on the final design criteria, elements, and standards.

Design criteria are defined as those requirements that govern the selection of the design elements and standards for a recreation site or facility.

Design elements are the physical characteristics of a recreation site or facility (e.g.water and sanitation systems, power, camp units, trailhead, and accessibility requirements) that when combined comprise the planned facility.

Design standards are the definitive parameters of individual elements (e.g. 4 water hydrants, 2 flush toilets, 110 volt power, 22 camp units with 8 foot tables and 4 camp units with 12 foot tables, and all facilities will be accessible with maximum 4% grades and hardened pathways).

Data necessary for development of the project's technical requirements are found in various documents such as the project proposal, inventories, management objectives, environmental analysis, agency regulations, and policy guidelines. Other technical guidelines are provided by industry standards, state and federal health and safety codes, various building codes, as well as internal technical policy and guidelines. Internal guidelines include the Recreation Opportunity Spectrum and the Visual Resource Management systems.

It is essential to the efficiency of project development teams and to management that the design criteria, elements and standards are clearly documented and understood. Limited budgets, complex and controversial projects, and expensive design teams warrent the extra effort required to plan and document the criteria and objectives. Clear documentation is particularly important where the design team is located outside the managing unit or when the design is contracted out. The design narrative basically serves as a contract between the project managers and the designers. It may also serve as the prospectus for contracting the design.

3) *Recommend Value Analysis Requirement*. The conceptual stage of project development is the most effective time for review for project improvement and pivotal in terms of producing benchmark cost estimates. It is recommended that the Staff Director identify projects requiring value analysis when they are accepted in the CI Program, and schedule the VAs in the Final Budget Advice to the Forests. Consider projects exceeding $300,000 in cost, or complex in nature for required value analysis.

4) *Correct Gate 2 Synchronization with Budget Cycle*. The optimum time to submit Gate 2 products and benchmark project cost estimates must be identified. This step will resolve the questions about adequate funding for the Design Phase, and the 20% project cost increase tolerance.

PHASE 3 - DESIGN

(See Chart 3)

Description: The design phase of project development interprets the design narrative and conceptual drawings into elements and standards and applies them to the physical and environmental settings to meet the management objectives. The purpose of the design phase is to employ all of the technical information, management direction, environmental issues and constraints, legal requirements, and social and political concerns in developing a plan to achieve the project objectives.

Goals and Objectives: The goals and objectives of the design phase are to develop and finalize a set of drawings and contract package with specifications and cost estimate.

Work Activities: Site surveys, development of construction drawings, specifications, contract package, and final cost estimates. Also included are site reviews and value analysis of the project.

End Products: An approved site development plan with a final contract package consisting of construction drawings, specifications and project cost estimates.

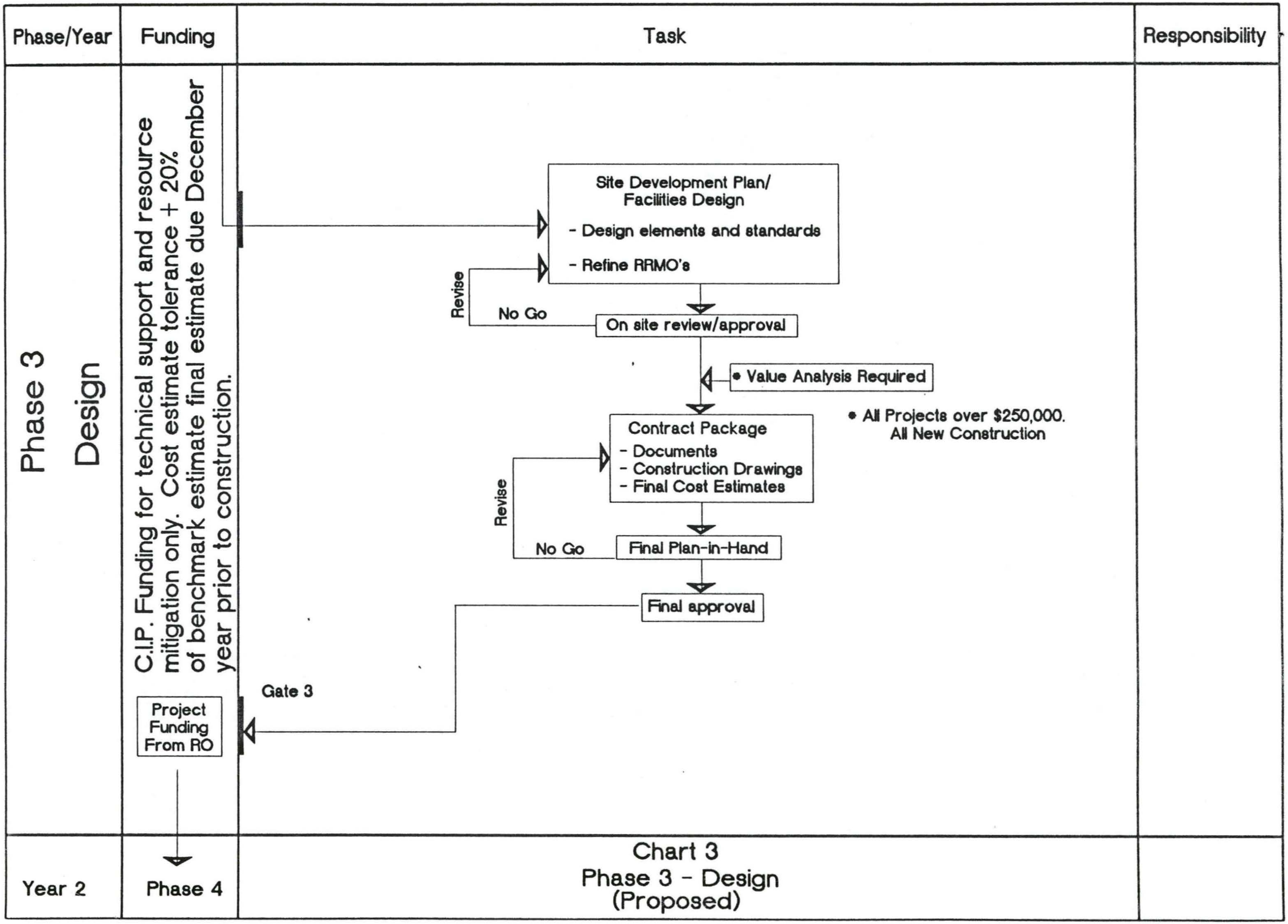
Responsibility: The project development team is responsible to the District Ranger and the Forest Supervisor to complete the project development package.

Funding: The design phase is funded through the Capital Investment Program.

Definitions:

> *Construction Drawings* - a set of drawings illustrating the physical requirements of the project plan. They indicate placement and dimensions of the phsyical modifications.
>
> *Specifications* - a narrative document that dictates quality and or construction requirements as well as method of payment for work performance.
>
> *Contract Package* - the entire package of construction drawings, specifications and administrative requirements for the purpose of contracting work.

This phase of project development is the culmination of the planning effort, field investigations, and technical skills into the formulation of a set of plans that illustrates what the project should be and do.


Phase/Year
Funding
Task
Responsibility
Phase 3
Design
Site Development Plan/ Facilities Design
- Design elements and standards
- Refine RRMO's
Revise
No Go
On site review/approval
• Value Analysis Required
• All Projects over $250,000. All New Construction
Contract Package
- Documents
- Construction Drawings
- Final Cost Estimates
Revise
No Go
Final Plan-in-Hand
Final approval
Gate 3
Project Funding From RO
Year 2
Phase 4

C.I.P. Funding for technical support and resource mitigation only. Cost estimate tolerance + 20% of benchmark estimate final estimate due December year prior to construction.

Chart 3
Phase 3 - Design
(Proposed)

EMPHASIS AREAS

1) *Emphasize Interdisciplinary Reviews*. It is very important that site and value analysis reviews are performed. These reviews provide critical input and allow one more detailed review prior to implementation. The reviews provide a better understanding of what is proposed to take place in the field. Better understanding should reduce the unexpected results or misinterpreted management objectives or environmental mitigation measures. These site reviews should be conducted with full interdisciplinary team participation.

A value analysis provides an independent review of the application of the design to the project management and environmental objectives.

2) *Design Process Considerations*. Some concerns that should be highlighted about the design process:

(1) Optimal design solutions do not exist. All solutions entail compromise to integrate management direction, issues, concerns, legal requirements, technology, and funding, and are as variable as the experience and training of the designer.

(2) Design changes are subject to the domino effect.

(3) Designs are not only objective but also subjective. This is particularly applicable when dealing with subject matter such as the Recreation Opportunity Spectrum and the Visual Resource Management System. "Beauty is in the eye of the beholder."

INTERIM

Description: The last step in proceeding through Gate 3. The interim time period (one year) is a continuation of the Design Phase to permit completion of the design. The intent is to allow for accurate cost estimates to be submitted to coincide with the timing of the program budget for the Construction Phase.

Goals and Objectives: Provide for updated project costs to be incorporated into the Regional Capital Investment Program.

Work Activities: Update and finalize project costs.

End Products: Final cost estimate prior to contracting action.

Responsibility: It is the responsibility of the project team, District and the Forest to complete this phase.

Funding: The Interim is an extension of the Design Phase and is funded through the Capital Investment appropriation. Cost estimates for Design should include the Interim workforce requirements and work activities .

The interim period is for administrative purposes only but is generally very necessary to ensure that funds are available to complete the project.

The design phase is complete when the final contract package has been approved by the proper technical staff and manager.